



STIC Search Report

EIC 1700

STIC Database Tracking Number: 117164

TO: Raymond Alejandro
Location: REM 6B59
Art Unit : 1745
March 19, 2004

Case Serial Number: 10/079003

From: Barba Koroma
Location: EIC 1700
REM EO4 A30
Phone: 571 272 2546

barba.koroma@uspto.gov

Search Notes

Examiner Alejandro,
Please find attached results of the search you requested. Various components of the claimed invention as spelt out in the claims were searched in multiple databases.

For your convenience, titles of hits have been listed to help you peruse the results set quickly. This is followed by a detailed printout of records. Please let me know if you have any questions.
Thanks.

Access DB# 117164**SEARCH REQUEST FORM**

Scientific and Technical Information Center

Requester's Full Name: Raymond Alejandro Examiner #: 76895 Date: 03/17/04
Art Unit: 1745 Phone Number 301 571 1272 - 1282 Serial Number: 101079003
Mail Box and Bldg/Room Location: Room 6B59 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Galvanic Element having at least one lithium-intercalating electrode
Inventors (please provide full names): Hang et al

Earliest Priority Filing Date: 02/20/02

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Please, see claims 1-11 (attached copy) for subject matter to be searched.

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	Type of Search	Vendors and cost where applicable
Searcher: _____	NA Sequence (#) _____	STN _____
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) _____	Questel/Orbit _____
Date Searcher Picked Up: _____	Bibliographic _____	Dr.Link _____
Date Completed: _____	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: _____	Fulltext _____	Sequence Systems _____
Clerical Prep Time: _____	Patent Family _____	WWW/Internet _____
Online Time: _____	Other _____	Other (specify) _____

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STRUCTURE FILE UPDATES: 18 MAR 2004 HIGHEST RN 664965-23-5
DICTIONARY FILE UPDATES: 18 MAR 2004 HIGHEST RN 664965-23-5

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 6, 2004

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FILE COVERS 1907 - 19 Mar 2004 VOL 140 ISS 13
FILE LAST UPDATED: 18 Mar 2004 (20040318/ED)

This file contains CAS Registry Numbers for easy and accurate
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=> file wpix

FILE 'WPIX' ENTERED AT 12:54:09 ON 19 MAR 2004
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FILE LAST UPDATED: 18 MAR 2004 <20040318/UP>
MOST RECENT DERWENT UPDATE: 200419 <200419/DW>
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

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>>> FOR DETAILS OF THE PATENTS COVERED IN CURRENT UPDATES, SEE
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>>> ADDITIONAL POLYMER INDEXING CODES WILL BE IMPLEMENTED FROM
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THE TIME RANGE CODE WILL ALSO CHANGE FROM 018 TO 2004.
SDIS USING THE TIME RANGE CODE WILL NEED TO BE UPDATED.
FOR FURTHER DETAILS: <http://thomsonderwent.com/chem/polymers/> <<<

=> d que

L5 137270 SEA FILE=CAPLUS ABB=ON PLU=ON GALVANIC(4A)(ELEMENT OR CELL)
OR BATTER? OR DRY CELL OR ELECTROCHEMICAL(3A)CELL OR (LITHIUM
OR LI)(5A)ELECTRODE?
L9 1 SEA FILE=REGISTRY ABB=ON PLU=ON 12597-68-1
L10 1 SEA FILE=REGISTRY ABB=ON PLU=ON 12190-79-3
L11 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-74-6
L12 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-69-9
L13 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-66-6
L14 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-62-2
L15 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-50-8
L16 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-48-4
L17 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-47-3
L18 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-36-0
L19 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-32-6
L20 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-31-5
L21 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-22-4
L22 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-02-0
L23 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7439-93-2
L24 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7439-89-6
L25 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7429-90-5
L26 1 SEA FILE=REGISTRY ABB=ON PLU=ON 95-14-7
L27 42766 SEA FILE=CAPLUS ABB=ON PLU=ON L9
L28 3240 SEA FILE=CAPLUS ABB=ON PLU=ON L10
L29 38364 SEA FILE=CAPLUS ABB=ON PLU=ON L11
L30 46135 SEA FILE=CAPLUS ABB=ON PLU=ON L12
L31 261629 SEA FILE=CAPLUS ABB=ON PLU=ON L13
L32 79355 SEA FILE=CAPLUS ABB=ON PLU=ON L14
L33 456844 SEA FILE=CAPLUS ABB=ON PLU=ON L15

KOROMA EIC1700

L34	160103	SEA FILE=CAPLUS ABB=ON	PLU=ON	L16
L35	170356	SEA FILE=CAPLUS ABB=ON	PLU=ON	L17
L36	52454	SEA FILE=CAPLUS ABB=ON	PLU=ON	L18
L37	143156	SEA FILE=CAPLUS ABB=ON	PLU=ON	L19
L38	86192	SEA FILE=CAPLUS ABB=ON	PLU=ON	L20
L39	151275	SEA FILE=CAPLUS ABB=ON	PLU=ON	L21
L40	291614	SEA FILE=CAPLUS ABB=ON	PLU=ON	L22
L41	73666	SEA FILE=CAPLUS ABB=ON	PLU=ON	L23
L42	389924	SEA FILE=CAPLUS ABB=ON	PLU=ON	L24
L43	337182	SEA FILE=CAPLUS ABB=ON	PLU=ON	L25
L44	6728	SEA FILE=CAPLUS ABB=ON	PLU=ON	L26
L45	31055	SEA FILE=CAPLUS ABB=ON PLU=ON (L27 OR L28 OR L29 OR L30 OR L31 OR L32 OR L33 OR L34 OR L35 OR L36 OR L37 OR L38 OR L39 OR L40 OR L41 OR L42 OR L43 OR L44) AND L5		
L46	82286	SEA FILE=CAPLUS ABB=ON PLU=ON L5 AND (CU OR COPPER OR ANTIMONY OR SB OR NI OR NICKEL OR INDIUM OR IN OR TIN OR SN OR SILVER OR AG OR LI OR LITHIUM OR VANADIUM OR V OR CR OR CHROMIUM OR BISMUTH OR BI OR ZINC OR ZN OR CO OR COBALT OR TITANIUM OR TI OR FE OR IRON)		
L47	83328	SEA FILE=CAPLUS ABB=ON	PLU=ON	L45 OR L46
L48	31382	SEA FILE=CAPLUS ABB=ON PLU=ON L47 AND (LITHIUM OR LI) AND (ELECTRODE OR ANODE OR CATHODE)		
L49	2273	SEA FILE=CAPLUS ABB=ON PLU=ON L48 AND ELECTRO? (4A) (DEPOSIT? OR PLAT? OR COAT?)		
L50	204	SEA FILE=CAPLUS ABB=ON PLU=ON L49 AND (FOIL OR SHEET)		
L51	7	SEA FILE=CAPLUS ABB=ON PLU=ON L50 AND CRYSTAL?		
L52	23	SEA FILE=CAPLUS ABB=ON PLU=ON L50 AND LAMINAT?		
L53	43015	SEA FILE=WPIX ABB=ON PLU=ON L5 AND (CU OR COPPER OR ANTIMONY OR SB OR NI OR NICKEL OR INDIUM OR IN OR TIN OR SN OR SILVER OR AG OR LI OR LITHIUM OR VANADIUM OR V OR CR OR CHROMIUM OR BISMUTH OR BI OR ZINC OR ZN OR CO OR COBALT OR TITANIUM OR TI OR FE OR IRON)		
L54	14117	SEA FILE=WPIX ABB=ON PLU=ON L53 AND (LITHIUM OR LI) AND (ELECTRODE OR ANODE OR CATHODE)		
L55	1590	SEA FILE=WPIX ABB=ON PLU=ON L54 AND ELECTRO? (4A) (DEPOSIT? OR PLAT? OR COAT?)		
L56	249	SEA FILE=WPIX ABB=ON PLU=ON L55 AND (FOIL OR SHEET)		
L57	13	SEA FILE=WPIX ABB=ON PLU=ON L56 AND INTERCALAT?		
L58	41	SEA FILE=WPIX ABB=ON PLU=ON L56 AND LAMINAT?		
L59	9	SEA FILE=WPIX ABB=ON PLU=ON L56 AND CRYSTAL?		
L61	55	SEA FILE=WPIX ABB=ON PLU=ON (L57 OR L58 OR L59)		
L62	41	SEA FILE=WPIX ABB=ON PLU=ON L61 AND LAMINAT?		
L63	3	SEA FILE=WPIX ABB=ON PLU=ON L62 AND (CRYSTAL? OR INTERCALAT?)		
L64	12	SEA FILE=CAPLUS ABB=ON PLU=ON L50 AND INTERCALAT?		
L65	40	SEA FILE=CAPLUS ABB=ON PLU=ON L51 OR L52 OR L64		
L66	41	SEA FILE=WPIX ABB=ON PLU=ON L62 OR L63		
L69	78	DUP REM L65 L66 (3 DUPLICATES REMOVED)		

=> d ti 1-78

YOU HAVE REQUESTED DATA FROM FILE 'CAPLUS, WPIX' - CONTINUE? (Y)/N:y

- L69 ANSWER 1 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Characteristics research on **electrodeposited Sn-Cu alloy anode** for **lithium ion battery**
- L69 ANSWER 2 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 1
TI Modified **lithium ion polymer battery**
- L69 ANSWER 3 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Method and apparatus for manufacturing secondary **battery**
- L69 ANSWER 4 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Secondary **battery** and method and apparatus for manufacture the **battery**
- L69 ANSWER 5 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Assembled structure of **lithium secondary batteries** with excellent space-saving characteristics and productivity
- L69 ANSWER 6 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Interpenetrating network solid polymer electrolyte for **electrochemical cell**, comprises branched siloxane polymer(s), crosslinking agent(s), monofunctional monomeric compound(s), metal salt(s), and radical reaction initiator(s).
- L69 ANSWER 7 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Negative **electrode** for **lithium secondary battery** comprises negative **electrode** material including silicon, conductive carbon material and binder resin to be alloyed with **lithium**.
- L69 ANSWER 8 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Bipolar electrochemical **battery** comprises stack of at least two **electrochemical cells** electrically arranged in series and including negative and positive **electrodes**, separator, and two electrically conductive **laminations**.
- L69 ANSWER 9 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Manufacturing method of **lithium primary battery** for calculator, involves sealing **laminated polymeric sheets**, each formed with chamber filled with **electrode** active material, along surrounding of chamber.
- L69 ANSWER 10 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI **Laminated battery** e.g. rechargeable **lithium -ion battery** for motor vehicle, has multiple incisions formed on **sheet junction** portion of bag-shaped separator.
- L69 ANSWER 11 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Manufacture of solid-electrolyte film used in **lithium secondary**

battery, involves coating polymer solution on base material, forming porous film, heat processing, peeling and impregnating with electrolyte liquid.

L69 ANSWER 12 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 2

TI **Galvanic element** with a **lithium intercalating electrode**

L69 ANSWER 13 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

TI Composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof

L69 ANSWER 14 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

TI Nonaqueous electrolyte secondary **battery** and process for the preparation thereof

L69 ANSWER 15 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI Manufacture of organic electronic device e.g light emitting diode, involves **depositing electronic** elements on exposed **electrode** of composite structure comprising adhesive-coated patterned release liner on **electrode**.

L69 ANSWER 16 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI Spinel-type **lithium-manganese** secondary cell for secondary **battery** employed in e.g., motor-driven vehicle, has conductive positive **electrode** member made of aluminum alloy mixed with manganese.

L69 ANSWER 17 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI Coin-shaped **lithium** ion secondary **battery**.

L69 ANSWER 18 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI Non-aqueous electrolyte **battery** for electronic clock, has **lithium** alloy layer formed on positive **electrode** side of **lithium** plate.

L69 ANSWER 19 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI Fold-up type **lithium** cell manufacturing method for mobile telephone, involves arranging active material **coated** edge portion of negative **electrode** overlapped with active material of positive **electrode**.

L69 ANSWER 20 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI Production of a separator/**electrode** composite for **lithium batteries**, involves coating a polymer matrix containing finely dispersed electrochemically-active material directly onto a porous separator.

L69 ANSWER 21 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

TI **Coatings** for **electrochemical** applications

L69 ANSWER 22 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

TI **Li3PO4:N/LiCoO2 coatings for thin film batteries**

L69 ANSWER 23 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 3

TI **Lithium thin film lamination technology on electrode to increase battery capacity**

L69 ANSWER 24 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

TI **Cathode and anode plates sandwiched between porous metal supports, their manufacture, and nonaqueous electrolyte secondary battery using them**

L69 ANSWER 25 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

TI **Secondary lithium ion batteries with high capacity and safety**

L69 ANSWER 26 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

TI **Electrodes for secondary lithium batteries, their manufacture, and secondary batteries**

L69 ANSWER 27 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

TI **Secondary lithium battery and its manufacture**

L69 ANSWER 28 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI **Manufacture of lithium polymer battery involves repeated charging of battery under specified conditions for gas evolution, after which cladding seal is broken to eject gas, and re-sealing cladding.**

L69 ANSWER 29 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI **Non-aqueous secondary battery used for motor vehicles, has separator having preset heat shrinking rate at specified temperature and has predetermined energy capacity and volume energy density.**

L69 ANSWER 30 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI **Lithium cell for portable device, has extraction part from lamination sheet of lead which is covered by synthetic rubber, so that lamination sheet along with bag-like edge part side of lead is provided externally.**

L69 ANSWER 31 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI **Lithium ion secondary battery consists of high boiling electrolyte, negative plate containing graphite group carbonaceous coated with amorphous coke, and positive electrode.**

L69 ANSWER 32 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI **Secondary battery e.g. lithium secondary battery for electricity generation, has ion impermeable polymeric sheet having elastic deformation, placed between core surfaces of positive electrode and negative plate.**

L69 ANSWER 33 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI **Flat battery has safety valve and heat welding resin**

sheet having lower melting point provided at the sealing portion of outer cladding case.

L69 ANSWER 34 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI Spiral **lithium** cell has **cathode** jar carrying spiral **electrode** provided with **lithium cathode sheet** at periphery press-contacting inner surface of jar with **anode** and sealant terminal boar connected through lead tab.

L69 ANSWER 35 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI **Lithium battery** used as energy source, has electrically conductive coating of fluorinated polymer and mixture of fine carbon and carbon fibers, provided between **cathode** current collector and **cathode** active material.

L69 ANSWER 36 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

TI Preparation and characterization of gold-codeposited LiMn_2O_4 **electrodes**

L69 ANSWER 37 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

TI **Coatings** for **electrochemical** applications

L69 ANSWER 38 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

TI Electrically conductive, freestanding microporous polymer **sheet**

L69 ANSWER 39 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

TI **Sheet** type **battery** with structure for preventing short circuit between **cathode** terminal and **anode** terminal

L69 ANSWER 40 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

TI **Electrode** materials having increased surface conductivity

L69 ANSWER 41 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI Terminal for **lithium** secondary **battery** of portable telephone, has brancing material connected with management material via hinge, so that it is movable along **lamination** direction of **plates** of **electrode laminate**.

L69 ANSWER 42 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI **Lithium** polymer secondary **battery** has **laminated sheet** with thermobonding resin film layer which **laminates electrode** group welded along outer side and adjoined with metallic **foil** weld.

L69 ANSWER 43 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI Flat **battery** has **laminated sheets** sealed by heat welding and inserted into concave portion in outer cladding case.

L69 ANSWER 44 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI **Lithium** ion secondary **battery** for use in motor vehicles and electrically driven wheel chairs comprises cylindrical **electrode laminate** provided on metal container.

- L69 ANSWER 45 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Laminar **battery** with coiled **electrodes** which has improved output as localized short circuits are prevented by bulge on part of **electrode**.
- L69 ANSWER 46 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Solid electrolyte composition for **battery**, contains gelled mixture of matrix polymer, reactive monomer, organic solvent and alkali metal electrolyte salt.
- L69 ANSWER 47 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Cathode** plates for secondary **lithium** ion **batteries** and **batteries** using them
- L69 ANSWER 48 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI **Cathode** material for **lithium** secondary cells.
- L69 ANSWER 49 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Outer cladding case of **lithium** polymer secondary **battery** - comprises **lamination sheet** and adhesive.
- L69 ANSWER 50 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI **Lithium** foil **lamination** method for manufacture of non-aqueous electrolyte secondary **batteries** - involves rolling and adhering heated **lithium** foil on surface of **electrode plate** of negative **electrode**.
- L69 ANSWER 51 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Secondary nonaqueous electrolyte **batteries**
- L69 ANSWER 52 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Spiral-type **sheet electrodes** suitable for **lithium** secondary **battery anodes**
- L69 ANSWER 53 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Non-aqueous electrolyte secondary **battery** - has **lithium foil laminated sheet** which is formed over **electrode** mixture on collector of **cathode** plate to form **cathode laminated board**.
- L69 ANSWER 54 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI **Lithium** secondary **battery** - includes **electrodes** having **coating** film comprising active material and binder containing denatured polyvinylidene fluoride group.
- L69 ANSWER 55 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Batteries** and secondary **lithium batteries**
- L69 ANSWER 56 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Nonaqueous electrolyte secondary **batteries** with current

collectors containing metal-coated resin **sheets**

L69 ANSWER 57 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

TI Spiral type **lithium batteries** and their manufacture

L69 ANSWER 58 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

TI Solid polymer electrolyte **batteries** with improved current collectors

L69 ANSWER 59 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI Non-aqueous **electrode plate** for **electrolyte** secondary **battery** - includes composition of active material layer varying along thickness direction.

L69 ANSWER 60 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

TI **Coated electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors, the **batteries** and supercapacitors containing the **electrodes**, and manufacture of the **electrodes**

L69 ANSWER 61 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI Porous metallic **sheet battery electrode** substrate - in which the **sheet** is formed of intertwined metallic fibres.

L69 ANSWER 62 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

TI Secondary nonaqueous **batteries**

L69 ANSWER 63 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

TI Manufacture of **sheet-like** plate and **batteries** using this plate.

L69 ANSWER 64 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI Plastics-supported metallic **foil** production - by vacuum metallisation and electroplating of resin film.

L69 ANSWER 65 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

TI Sealed planar **batteries**

L69 ANSWER 66 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

TI **Electrodeposition** of tantalum **coatings** on metallic substrates such as steel

L69 ANSWER 67 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI Non-aqueous-electrolyte **battery** production - by **laminating** aluminium **foil** and separator **sheet** for **electrode** unit, and placing on **lithium** plate in **cathode** can NoAbstract Dwg 1/2.

L69 ANSWER 68 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

TI **Lithium-manganese dioxide batteries**

L69 ANSWER 69 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Lithium batteries** with laminar separators

L69 ANSWER 70 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Conductive compositions for electronic part **electrodes**

L69 ANSWER 71 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Protected **electrode** material and its forming

L69 ANSWER 72 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Solid electrolyte **battery**

L69 ANSWER 73 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Compact **battery** powered appliance, e.g. calculator - has **lithium battery** cell made from leaves sealed inside plastic film conductor strips.

L69 ANSWER 74 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Lithium** solid electrolyte **battery**

L69 ANSWER 75 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI **Lithium electrode** - with **lithium** coating and pressed **lithium** pieces on collector.

L69 ANSWER 76 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Solid electrolyte storage **battery** - has negative **electrode** activator of **lithium** (alloy) and **lithium** nitride electrolyte for increased discharge capacitance.

L69 ANSWER 77 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Cathode** for thin and **laminated batteries**

L69 ANSWER 78 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Electrocrystallization** of compact deposits

=> d all 1-78 169

YOU HAVE REQUESTED DATA FROM FILE 'CAPLUS, WPIX' - CONTINUE? (Y)/N:y

L69 ANSWER 1 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2004:179576 CAPLUS
ED Entered STN: 05 Mar 2004
TI Characteristics research on **electrodeposited Sn-Cu alloy anode** for **lithium ion battery**
AU Pu, Wei-Hua; Ren, Jian-Guo; Wan, Chun-Rong; Du, Zhi-Ming
CS School of Mechano-Electronics Engineering, Beijing Institute of Technology, Beijing, 100081, Peop. Rep. China
SO Wuji Cailiao Xuebao (2004), 19(1), 86-92
CODEN: WCXUET; ISSN: 1000-324X
PB Kexue Chubanshe

DT Journal
 LA Chinese
 CC 52 (Electrochemical, Radiational, and Thermal Energy Technology)
 AB A thin film of active tin that can reversibly react with lithium was electrodeposited onto a copper foil collector and employed as anode for lithium ion battery after a heat-treatment in argon atmospheric. The anal. results of SEM (SEM), X-ray diffraction (XRD) and electrochem. tests of model cells show that the initial discharge specific capacity of the electrodeposited tin electrode is higher than that of the slurry-coating-tin electrode. They are 747mAh·g⁻¹ and 442mAh·g⁻¹ resp. The electrode surface structure, chemical composition, and crystal size are different before and after heat-treatment (e.g. tin crystal size: 102.4nm and 121.0nm, resp.). Despite of a lower initial discharge specific capacity (4.9mAh·g⁻¹), the annealed tin electrode has a much higher initial coulomb efficiency (92%) and more excellent cycle performance (the capacity retention after 30 cycles: 58%) compared with no annealing tin electrode.

L69 ANSWER 2 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 1
 AN 2003:154981 CAPLUS
 DN 138:190736
 ED Entered STN: 28 Feb 2003
 TI Modified lithium ion polymer battery
 IN Zhang, Guiping; Yu, Yongyang; Lee, Torng Jinn
 PA Peop. Rep. China
 SO U.S. Pat. Appl. Publ., 6 pp.
 CODEN: USXXCO
 DT Patent
 LA English
 IC ICM H01M004-62
 ICS H01M004-50; H01M004-52; H01M010-40
 NCL 429217000; 429317000; 429316000; 429231100; 429231300; 429223000;
 429224000; 429231800; 429338000; 429342000
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003039886	A1	20030227	US 2001-933838	20010822
PRAI	US 2001-933838		20010822		

AB A modified lithium ion polymer battery, comprises a pos. electrode sheet and a neg. electrode sheet, formed by blending a binder with pos. electrode powder and coating the resulting blend on a copper foil or an aluminum foil used as the collector, wherein the binder can be prepared from the following three components: (a) 0.1-95 wt% of polyvinylidene fluoride; (b) 0.1-90 wt% of a modified polyacrylates; and (c) 0.1-85 wt% of a modified polyethylene or polydienes; alone, or from any two or all of them in a proper ratio; and a

separation membrane, which is a nonporous polyalkylene oxide film or a film made by coating a blend of polyalkylene oxide and polyvinylidene fluoride, or a micro-porous polypropylene film, or a three-layered composite film of polypropylene/polyethylene/polypropylene; wherein the pos. and neg.

electrode sheets are laminated with the separation membrane to form an overlap **sheet** or roll in an alternative and isolation manner; the pos. and neg. collectors are welded, resp.; and the whole **laminates** is assembled with an aluminum plastic membrane to form the **lithium ion polymer battery**.

- ST **lithium ion polymer battery** modified
- IT Carbonaceous materials (technological products)
 RL: DEV (Device component use); USES (Uses)
 (hard; modified **lithium ion polymer battery**)
- IT Secondary **batteries**
 (lithium; modified **lithium ion polymer battery**)
- IT **Battery anodes**
Battery cathodes
 Secondary **battery** separators
 (modified **lithium ion polymer battery**)
- IT Petroleum coke
 Polyoxyalkylenes, uses
 RL: DEV (Device component use); USES (Uses)
 (modified **lithium ion polymer battery**)
- IT Carbon black, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (modified **lithium ion polymer battery**)
- IT Fluoropolymers, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (modified **lithium ion polymer battery**)
- IT Alkadienes
 RL: MOA (Modifier or additive use); USES (Uses)
 (polymers; modified **lithium ion polymer battery**)
- IT 7440-44-0, Carbon, uses
 RL: DEV (Device component use); USES (Uses)
 (mesocarbon microbeads; modified **lithium ion polymer battery**)
- IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, .
 Propylene carbonate 110-71-4 616-38-6, Dimethyl carbonate 623-96-1,
 Dipropyl carbonate 7429-90-5, Aluminum, uses 7440-50-8
 , **Copper**, uses 7791-03-9, **Lithium perchlorate**
 9003-07-0, Polypropylene 9011-14-7, Pmma 12031-65-1, **Lithium**
nickel oxide linio2 12057-17-9, **Lithium** manganese
 oxide limn2o4 12190-79-3, **Cobalt lithium**
 oxide colio2 14283-07-9, **Lithium** tetrafluoroborate
 18424-17-4, **Lithium** hexafluoroantimonate 21324-40-3,
Lithium hexafluorophosphate 29935-35-1, **Lithium**
 hexafluoroarsenate 33454-82-9, **Lithium** triflate 52627-24-4,
Cobalt lithium oxide 73506-93-1, Diethoxyethane
 90076-65-6 135573-53-4, **Cobalt lithium**
nickel oxide co0-1lini0-1o2
 RL: DEV (Device component use); USES (Uses)

(modified lithium ion polymer battery)

IT 9002-88-4, Polyethylene 24937-79-9, Polyvinylidene fluoride
49717-87-5, 2-Propenoic acid, ion(1-), homopolymer, uses
RL: MOA (Modifier or additive use); USES (Uses)
(modified lithium ion polymer battery)

IT 7782-42-5, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(natural; modified lithium ion polymer battery)

L69 ANSWER 3 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:154762 CAPLUS
DN 138:190728
ED Entered STN: 28 Feb 2003
TI Method and apparatus for manufacturing secondary battery
IN Kurimoto, Yasuo; Furuichi, Ryoichi
PA Toray Engineering Co., Ltd., Japan
SO PCT Int. Appl., 48 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
IC ICM H01M010-40
ICS H01M004-02; H01M010-04; H01M004-66
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003017410	A1	20030227	WO 2002-JP7511	20020724
	W: CN, KR, US RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
	JP 2003059525	A2	20030228	JP 2001-242009	20010809
PRAI	JP 2001-242009	A	20010809		

AB The **battery** is prepared by using an apparatus, comprising a means for supplying **electrode pair sheets**, means for coating an **electrode** substance containing solution on both side of the **electrode** pair; a means for coating an **electrolyte-insulator** mixture on both side of the **electrode sheets**; a heating mechanism for fixing various substances coated **electrode sheets**, a separator supplying means for superposing a separator between the **cathode** and **anode sheets** with fixed **cathode** and **anode** substances, electrolyte-insulator mixts.; and a means for winding the **cathode** and **anode sheet** with the separator in a **laminated** state into a predetd. shape.

ST secondary **battery** manuf app
IT Secondary **batteries**
(method and apparatus for manufacture of secondary **lithium batteries** with coiled stack of electrolyte and insulator covered **electrodes**)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Matsushita Electric Industrial Co Ltd; JP 20016661 A 2001

- (2) Sony Corp; WO 0013252 A 2000 CAPLUS
- (3) Toray Industries Inc; JP 11-97067 A 1999 CAPLUS

L69 ANSWER 4 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
 AN 2003:42603 CAPLUS
 DN 138:92873
 ED Entered STN: 17 Jan 2003
 TI Secondary **battery** and method and apparatus for manufacture the
battery
 IN Kurimoto, Yasuo; Furuichi, Ryoichi
 PA Toray Engineering Co., Ltd., Japan
 SO PCT Int. Appl., 35 pp.
 CODEN: PIXXD2
 DT Patent
 LA Japanese
 IC ICM H01M010-40
 ICS H01M004-02; H01M010-04
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	WO 2003005480	A1	20030116	WO 2002-JP6662	20020701
	W: CN, KR, US				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT,				
	LU, MC, NL, PT, SE, SK, TR				
	JP 2003017111	A2	20030117	JP 2001-203285	20010704
PRAI	JP 2001-203285	A	20010704		
AB	The battery has a coiled stack containing a cathode and an anode , where both electrodes are covered with a thermally hardened layer of an electrolyte-insulator mixture The battery is prepared by using an apparatus, having means continuously supplying cathode and anode sheets , means continuously applying an electrolyte-insulator mixture solution on the electrode sheets , heaters solidifying the mixture on the electrode sheets , and means laminating and winding the covered electrode sheets .				
ST	secondary battery electrode electrolyte insulator coating laminating winding app				
IT	Secondary batteries (lithium; method and apparatus for manufacture of secondary lithium batteries with coiled stack of electrolyte and insulator covered electrodes)				

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE

- (1) Sony Corp; EP 1030397 A2 2000 CAPLUS
- (2) Sony Corp; JP 2000243427 A 2000 CAPLUS
- (3) Sony Corp; JP 2001135306 A 2001 CAPLUS

L69 ANSWER 5 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
 AN 2003:260905 CAPLUS
 DN 138:274102
 ED Entered STN: 04 Apr 2003

TI Assembled structure of **lithium secondary batteries**
 with excellent space-saving characteristics and productivity
 IN Kawamura, Kenji; Kitoh, Kenshin
 PA NGK Insulators, Ltd., Japan
 SO U.S. Pat. Appl. Publ., 18 pp.
 CODEN: USXXCO
 DT Patent
 LA English
 IC ICM H01M002-30
 NCL 429181000; 429053000; 429175000; 429176000; 429129000; 429178000;
 429174000
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003064285	A1	20030403	US 2002-260746	20020930
	JP 2003115285	A2	20030418	JP 2001-308095	20011003
	EP 1300896	A1	20030409	EP 2002-22105	20021002
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
PRAI	JP 2001-308095	A	20011003		

AB A **lithium secondary battery** is provided with an inner
electrode body comprising a pos. **electrode plate**
 and a neg. **electrode plate** resp. made up of at least
 one metal foil wound or laminated; the inner
electrode body being impregnated with a non-aqueous electrolyte,
 current collector members for leading a current out of this inner
electrode body **battery** case with both ends left open;
 the **battery** case housing the inner **electrode** body, and
 two caps provided with internal terminals thereon; the caps being used to
 seal the inner **electrode** body at both open ends of the
battery. By adopting such a configuration that pos. and neg.
 external terminals are placed on one end of a **battery**
 collectively, protrusions of the **battery** are so reduced that the
 collective coupling of **batteries** becomes easier.

ST **lithium secondary battery** assembled structure
 IT Brazing
 Caulking compositions
 Electric vehicles
 Rolling (metals)
 Welding
 (assembled structure of **lithium secondary batteries**
 with excellent space-saving characteristics and productivity)
 IT Joining
 (blasting; assembled structure of **lithium secondary**
batteries with excellent space-saving characteristics and
 productivity)
 IT Casting process
 (enveloped; assembled structure of **lithium secondary**
batteries with excellent space-saving characteristics and
 productivity)
 IT Adhesion, physical

(friction bonding; assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity)

IT Secondary **batteries**
(**lithium**; assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity)

IT Ethylene-propylene rubber
Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(packing with; assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity)

IT **Copper** alloy, base
Nickel alloy, base
RL: DEV (Device component use); USES (Uses)
(assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity)

IT Aluminum alloy, base
RL: DEV (Device component use); USES (Uses)
(core; assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity)

IT 7440-02-0, **Nickel**, uses 7440-50-8, **Copper**, uses
RL: DEV (Device component use); USES (Uses)
(assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity)

IT 7429-90-5, Aluminum, uses
RL: DEV (Device component use); USES (Uses)
(core; assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity)

IT 9010-79-1
RL: TEM (Technical or engineered material use); USES (Uses)
(ethylene-propylene rubber, packing with; assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity)

IT 9002-88-4, Polyethylene 9003-07-0, Polypropylene
RL: TEM (Technical or engineered material use); USES (Uses)
(packing with; assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity)

L69 ANSWER 6 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2004-031851 [03] WPIX
CR 2004-059327 [06]
DNN N2004-025124 DNC C2004-010599
TI Interpenetrating network solid polymer electrolyte for **electrochemical cell**, comprises branched siloxane polymer(s), crosslinking agent(s), monofunctional monomeric compound(s), metal salt(s), and radical reaction initiator(s).

DC A28 A32 A85 L03 X16
IN AMINE, K; HYUNG, Y; OH, B; VISSERS, D R
PA (AMIN-I) AMINE K; (HYUN-I) HYUNG Y; (OHBB-I) OH B; (VISS-I) VISSERS D R
CYC 1
PI US 2003180624 A1 20030925 (200403)* 18p H01M010-40
ADT US 2003180624 A1 US 2002-104352 20020322
PRAI US 2002-104352 20020322
IC ICM H01M010-40
ICS H01M010-04
AB US2003180624 A UPAB: 20040123
NOVELTY - An interpenetrating network solid polymer electrolyte comprises branched siloxane polymer(s) having poly(alkylene oxide) branch as side chain, crosslinking agent(s), monofunctional monomeric compound(s) for controlling crosslinking density, metal salt(s), and radical reaction initiator(s).
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:
(a) a method for preparing the interpenetrating network polymer electrolyte comprising dissolving **lithium** salt and radical initiator in branched siloxane polymer, mixing crosslinking agent(s) and monomeric compound with the resulting mixture, casting the resulting mixture into substrate, and placing the cast liquid film in over or heating medium for solidification;
(b) a **lithium** ion rechargeable cell comprising **lithium** metal to **lithium** alloy **anode**, solid polymer electrolyte, and metal oxide **cathode**; and
(c) a method for assembling a **lithium** rechargeable cell with solid polymer **electrolyte** comprising **coating** branched siloxane polymer into surfaces of porous supporter, **cathode laminate**, and **anode laminate**, curing the precursor solution to make solid polymer electrolyte, stacking each components including porous supporter, **cathode laminate**, and **anode laminate**, winding or folding the stacked components to prepare spiral wound cell or prismatic cell, and packaging the cell in metal can, plastic pouch, or foil-plastic **laminated** pouch.
USE - For **electrochemical cell**, e.g. **lithium** ion rechargeable cell (claimed).
ADVANTAGE - The invention provides an **electrochemical cell** having extremely high cycle life and electrochemical stability.
Dwg.0/10
FS CPI EPI
FA AB
MC CPI: A05-H01B; A06-A00E2; A12-E06; A12-E09; L03-E01C3
EPI: X16-B01F1; X16-J01A; X16-J08

L69 ANSWER 7 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2003-765946 [72] WPIX
DNN N2003-613496 DNC C2003-210386
TI Negative **electrode** for **lithium** secondary **battery** comprises negative **electrode** material including silicon, conductive carbon material and binder resin to be alloyed with

lithium.

DC A85 L03 X16
IN FUKUI, A; KUSUMOTO, Y; NAKAMURA, H
PA (SAOL) SANYO ELECTRIC CO LTD
CYC 2
PI US 2003148185 A1 20030807 (200372)* 14p H01M004-64
JP 2003203637 A 20030718 (200372) 12p H01M004-66
ADT US 2003148185 A1 US 2002-329571 20021227; JP 2003203637 A JP 2001-401286
20011228
PRAI JP 2001-401286 20011228
IC ICM H01M004-64; H01M004-66
ICS H01M004-02; H01M004-38; H01M004-58; H01M004-62; H01M010-40
AB US2003148185 A UPAB: 20031107
NOVELTY - A negative **electrode** (13) for **lithium**
secondary **battery** comprises a negative **electrode**
material to be alloyed with **lithium** and a negative
electrode collector (13a) having the negative material. The
negative **electrode** collector has a proportional limit of not
less than 2 N/mm. The negative **electrode** material contains
silicon, conductive carbon material and binder resin.
USE - **Lithium** secondary **battery** (claimed).
ADVANTAGE - Achieves excellent charge/discharge cycle performance by
suppressing decrease in contact between the negative **electrode**
material and the negative **electrode** collector resulting from the
charging/discharging processes.
DESCRIPTION OF DRAWING(S) - The figure is a section of a
lithium secondary **battery**.
Battery case 10
Laminate film 11
Positive **electrode** 12
Negative **electrode** 13
Negative **electrode** collector 13a
Dwg. 2A/4
FS CPI EPI
FA AB; GI
MC CPI: A12-E06; L03-E01B5B
EPI: X16-E01C; X16-E01E; X16-E08A; X16-E09

L69 ANSWER 8 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2003-744651 [70] WPIX
CR 2003-415394 [39]
DNN N2003-596411 DNC C2003-204610
TI Bipolar electrochemical **battery** comprises stack of at least two
electrochemical cells electrically arranged in series
and including negative and positive **electrodes**, separator, and
two electrically conductive **laminations**.
DC A85 L03 X16
IN KLEIN, M G; PLIVELICH, R; RALSTON, P
PA (KLEI-I) KLEIN M G; (PLIV-I) PLIVELICH R; (RALS-I) RALSTON P
CYC 1
PI US 2003138691 A1 20030724 (200370)* 19p H01M010-18
ADT US 2003138691 A1 Cont of US 2001-902871 20010711, US 2003-337816 20030106

FDT US 2003138691 A1 Cont of US 6503658

PRAI US 2001-902871 20010711; US 2003-337816 20030106

IC ICM H01M010-18

ICS H01M002-08; H01M004-52; H01M004-58; H01M004-62; H01M004-66

AB US2003138691 A UPAB: 20031030

NOVELTY - A bipolar electrochemical **battery** comprises a stack of at least two **electrochemical cells** electrically arranged in series. Each **electrochemical cell** comprises negative and positive **electrodes**, a separator, and first and second electrically conductive **laminations**. The **laminations** are sealed peripherally to form an enclosure including the **electrodes**, separator and electrolyte.

DETAILED DESCRIPTION - A bipolar electrochemical **battery** comprises a stack of at least two **electrochemical cells** electrically arranged in series, with the positive face of each cell contacting the negative face of an adjacent **cell**. Each **electrochemical cell** comprises a negative **electrode** (2), a positive **electrode** (3), a separator (4) between the **electrodes** and including an electrolyte, a first electrically conductive **lamination** (5) in electrical contact with the outer face of negative **electrode**, and a second electrically conductive **lamination** (6) in electrical contact with the outer face of positive **electrode**. Each conductive **lamination** includes an inner metal layer (7, 7a), and a polymeric outer layer (8, 8a) having perforation(s) (9, 9a) to expose the inner metal layer. The first and second **laminations** are sealed peripherally to each other to form an enclosure including the **electrodes**, separator, and electrolyte.

An INDEPENDENT CLAIM is also included for fabrication of bipolar electrochemical **battery** by providing a stack of at least two **electrochemical cells**, each comprising negative and positive **electrodes**, separator, and first and second electrically conductive **laminations**; and sealing the first and second **laminations** peripherally to each other to form an enclosure.

USE - For use as electrochemical **battery**.

ADVANTAGE - The inventive **battery** has high energy storage capacity, efficient **battery** performance, and long-term chemical and physical stability.

DESCRIPTION OF DRAWING(S) - The figure shows an overview of a wafer cell.

Negative **electrode** 2

Positive **electrode** 3

Separator 4

First conductive **lamination** 5

Second conductive **lamination** 6

Inner metal layers 7, 7a

Polymeric outer layers 8, 8a

Perforations 9, 9a

Dwg.1/10

FS CPI EPI

FA AB; GI

MC CPI: A11-C01C; A12-E06; L03-E01D3
EPI: X16-E01C1; X16-E01E; X16-E02; X16-E09; X16-F01A; X16-F06

L69 ANSWER 9 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2003-650994 [62] WPIX
DNC C2003-178595

TI Manufacturing method of **lithium** primary **battery** for
calculator, involves sealing **laminated** polymeric **sheets**
, each formed with chamber filled with **electrode** active
material, along surrounding of chamber.

DC L03

PA (NITS) NGK SPARK PLUG CO LTD

CYC 1

PI JP 2003197208 A 20030711 (200362)* 14p H01M006-16

ADT JP 2003197208 A JP 2001-398052 20011227

PRAI JP 2001-398052 20011227

IC ICM H01M006-16

ICS H01M004-06

AB JP2003197208 A UPAB: 20030928

NOVELTY - The method involves **laminating** pair of polymeric
sheets (1,3), each formed with chamber (2,4) filled with
electrode active material (5,6), by interposing a separator (9)
between them. A pair of **electrode** **plates** (7,8) are
respectively arranged at outer sides of the **sheets**, to close the
respective chambers. The **sheets** are sealed along the surrounding
of the chamber.

DETAILED DESCRIPTION - The **electrode** active materials are
filled in respective chambers, after fixing the **electrode**
plates to the surfaces (1b,3b) of the **sheets**, using hot
melt adhesive layer. The separator is fixed to the surfaces (1a,3a) of the
sheets, after filling **electrode** active materials to the
chambers, using hot melt adhesive layer. The sealing of both
laminated sheets, along the surrounding of the chamber,
is performed by ultrasonic welding process. The paste like
electrode active material (6) is filled, by positioning a printing
mask (15) having several filling openings, on the **sheet** to form
pattern. A positioning frame (20) is provided to support the peripheral
edge of the **sheets**. **Lithium** metal and manganese oxide
are used as negative and positive **electrode** active materials,
respectively.

USE - For manufacturing **lamination** type **lithium**
primary **battery** for use in integrated chip card, card type
calculator.

ADVANTAGE - Thin **battery** is easily and efficiently
manufactured. Sealing performance is improved. The manufacturing process
is simplified.

DESCRIPTION OF DRAWING(S) - The figure shows the sectional views of
the **battery** manufacturing apparatus. (Drawing includes
non-English language text).

polymeric **sheets** 1,3

surfaces 1a,1b,3a,3b

chambers 2,4

electrode active materials 5,6

electrode plates 7,8

separator 9

printing mask 15

positioning frame 20

Dwg.1/20

FS CPI

FA AB; GI

MC CPI: L03-E01A

L69 ANSWER 10 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2003-462384 [44] WPIX

DNN N2003-367905

TI **Laminated battery** e.g. rechargeable **lithium**

-ion **battery** for motor vehicle, has multiple incisions formed on
sheet junction portion of bag-shaped separator.

DC W01 X16 X21 X22

PA (NIDE) NEC CORP

CYC 1

PI JP 2003092100 A 20030328 (200344)* 11p H01M002-18

ADT JP 2003092100 A JP 2001-284812 20010919

PRAI JP 2001-284812 20010919

IC ICM H01M002-18

ICS H01M010-04

ICA H01M010-40

AB JP2003092100 A UPAB: 20030710

NOVELTY - A bag-shaped separator (13) formed by joining outer edge portions of a pair of separator **sheets**, accommodates a positive **electrode plate** (12). Multiple incisions (15) are formed along the **sheet** junction portion of bag shaped separator such that the incisions do not overlap with the positive **electrode plate**.

USE - **Laminated battery** e.g. rechargeable **lithium-ion battery** for electric vehicle, hybrid car, mobile telephone and motor vehicle.

ADVANTAGE - Prevents jumping out of **electrode plate** from bag-shaped separator and generation of wrinkle in bag-shaped separator at the time of joining separator **sheets**. Improves property of **laminated battery**.

DESCRIPTION OF DRAWING(S) - The figure shows the top view of the positive **electrode plate** of the **laminated battery**. (Drawing includes non-English language text).

positive **electrode plate** 12

bag-shaped separator 13

incision 15

Dwg.3/23

FS EPI

FA AB; GI

MC EPI: W01-C01D3C; W01-C01E5B; X16-B01F1; X16-F02; X21-A01D; X21-A01F;
X21-B01A; X22-F01; X22-P04

L69 ANSWER 11 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2003-527515 [50] WPIX
DNN N2003-418726 DNC C2003-142435
TI Manufacture of solid-electrolyte film used in **lithium secondary battery**, involves coating polymer solution on base material, forming porous film, heat processing, peeling and impregnating with electrolyte liquid.
DC A85 L03 X16
PA (DAIE) MITSUBISHI CABLE IND LTD
CYC 1
PI JP 2003017124 A 20030117 (200350)* 8p H01M010-40
ADT JP 2003017124 A JP 2001-196619 20010628
PRAI JP 2001-196619 20010628
IC ICM H01M010-40
ICS C08J009-14
ICI C08L027:16
AB JP2003017124 A UPAB: 20030805
NOVELTY - The manufacture of the solid-**electrolyte** film involves **coating** a polymer solution containing fluorine polymer mainly having vinylidene fluoride, foaming agent and solvent on base material. A porous film is formed by vaporizing the foaming agent and solvent in polymer solution followed by peeling from base material, heat processing at 60 deg. C or more and impregnating with electrolyte liquid of **lithium salt**.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:
(1) solid electrolyte film; and
(2) **lithium secondary battery**.
USE - For **lithium secondary batteries** (claimed), as **sheet-like battery** cover, **lamine** film for metal cans such as cylindrical can, prismatic-tube can and button-like can.
ADVANTAGE - The **lithium secondary battery** using the solid electrolyte film has reduced surface wrinkles on the **electrode** surface, improved **battery** properties such as cycle property, low temperature property and increased internal resistance. The process film provides excellent thermal stability and solvent resistance to the solid-electrolyte film.
Dwg.0/0
FS CPI EPI
FA AB
MC CPI: A04-E10B; A08-B01; A08-S02; A11-B05D; A11-B06A; A11-B06D; A12-E06; L03-E01C2; L03-E01C3
EPI: X16-B01F; X16-J01A; X16-J08

L69 ANSWER 12 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 2
AN 2002:656107 CAPLUS
DN 137:203949
ED Entered STN: 30 Aug 2002
TI **Galvanic element** with a **lithium intercalating electrode**
IN Haug, Peter; Birke, Peter; Holl, Konrad; Ilic, Dejan
PA Microbatterie GmbH, Germany; Varta Microbatterie GmbH

SO Eur. Pat. Appl., 6 pp.

CODEN: EPXXDW

DT Patent

LA German

IC ICM H01M004-02

ICS H01M004-66

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1235286	A2	20020828	EP 2002-1556	20020123
	EP 1235286	A3	20040303		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	DE 10108695	A1	20020905	DE 2001-10108695	20010223
	US 2002119376	A1	20020829	US 2002-79003	20020220
	JP 2002304998	A2	20021018	JP 2002-43644	20020220
	CN 1372342	A	20021002	CN 2002-105123	20020222
PRAI	DE 2001-10108695	A	20010223		

AB This galvanic element has a lithium intercalating electrode with electrochem. active material on a foil-like metallic conductor. The conductor is coated with electrochem. deposited crystals of another metal or of the same metal as the conductor. This coating increases the contact area and reduces the transition resistance of the active material. The metal support may be Al, Cu, V, Ti, Cr, Fe, Ni, Co, alloys of these metals, or a stainless steel. The deposited metal may be Cu, V, Ti, Cr, Fe, Ni, Co, Zn, Sn, In, Sb, Bi, Ag or alloys of these metals. The crystal size of the electrochem. deposited material is 1-10 μm and there is preferably only 3 deposited crystalline layers.

ST battery anode cathode lithium intercalating electrode metal crystallite

IT Battery anodes

Battery cathodes

Electric capacitance

Film electrodes

Grain size

Laminated materials

(galvanic element with a lithium

intercalating electrode)

IT Alloys, uses

Polyesters, uses

RL: DEV (Device component use); USES (Uses)

(galvanic element with a lithium

intercalating electrode)

IT Chromating

(treatment of electrode; galvanic element with a lithium intercalating electrode)

IT 7782-42-5, Graphite, uses
 RL: DEV (Device component use); USES (Uses)
 (MCMB or KS 6; galvanic element with a
 lithium intercalating electrode)

IT 9011-17-0, Powerflex
 RL: DEV (Device component use); USES (Uses)
 (Powerflex; galvanic element with a lithium
 intercalating electrode)

IT 7440-44-0, Super P, uses
 RL: DEV (Device component use); USES (Uses)
 (activated; galvanic element with a lithium
 intercalating electrode)

IT 95-14-7, 1H-Benzotriazole
 RL: DEV (Device component use); USES (Uses)
 (electrode coating; galvanic
 element with a lithium intercalating
 electrode)

IT 84-74-2, Dibutyl phthalate 7429-90-5, Aluminum, uses
 7439-89-6, Iron, uses 7439-93-2,
 Lithium, uses 7440-02-0, Nickel, uses
 7440-22-4, Silver, uses 7440-31-5, Tin
 , uses 7440-32-6, Titanium, uses 7440-36-0,
 Antimony, uses 7440-47-3, Chromium, uses
 7440-48-4, Cobalt, uses 7440-50-8,
 Copper, uses 7440-62-2, Vanadium, uses
 7440-66-6, Zinc, uses 7440-69-9,
 Bismuth, uses 7440-74-6, Indium, uses
 12190-79-3, Cobalt lithium oxide (CoLiO₂)
 12597-68-1, Stainless steel, uses 25038-59-9, Mylar, uses
 RL: DEV (Device component use); USES (Uses)
 (galvanic element with a lithium
 intercalating electrode)

L69 ANSWER 13 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
 AN 2002:812221 CAPLUS
 DN 137:339974
 ED Entered STN: 25 Oct 2002
 TI Composite electroless for lithium secondary batteries
 and manufacturing electrodes thereof
 IN Ishikawa, Naomoto
 PA Mitsubishi Heavy Industries, Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 4 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01M010-40
 ICS H01M004-02; H01M004-04; H01M004-62
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 57, 72, 76
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI JP 2002313427 A2 20021025 JP 2001-118213 20010417
 PRAI JP 2001-118213 20010417
 AB The title manufacturing involves (1) masking with isocyanate groups to cancel the reactivity of an active metal oxide in a polyaniline/polymer solid electrolyte polymer precursor solution and mixing the solution with an isocyanate compound to give a paste, (2) coating the paste on a collector, (3) heating at a temperature below the dissociation temperature of the blocking agent to give an **anode**, (4) mixing an electrolyte with an organic solvent, a polymer solid electrolyte precursor, and the isocyanate compound to give a polymer electrolyte **sheet**, and (5) **laminating** the polymer electrolyte **sheet** to the **anode** and annealing the **laminates** at a temperature to react the dissociated active isocyanate and unreacted polyethylene glycol. The process makes the manufacture of the **electrodes** easier and the polymer solid electrolyte interface-resistance decreased.
 ST polyaniline isocyanate masking polymer solid electrolyte
 IT Annealing
 Polymer electrolytes
 (composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)
 IT Polyoxyalkylenes, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)
 IT **Battery electrodes**
 (composites; composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)
 IT Polyanilines
 RL: PRP (Properties)
 (conductor solution; composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)
 IT Electric resistance
 (interface, for solid electrolyte/**electrode**; composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)
 IT Functional groups
 (isocyanato group, triple-functional, electrolyte paste; composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)
 IT **Secondary batteries**
 (**lithium**; composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)
 IT **Coating materials**
 (masking; composite **electroless** for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)
 IT **Coating materials**
 (polymer **electrolyte** paste; composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)
 IT Oxides (inorganic), uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical

process); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)

(reactive, masking of; composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)

IT 13453-79-7

RL: DEV (Device component use); MOA (Modifier or additive use); PRP (Properties); USES (Uses)

(active reagent; composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)

IT 108-95-2D, Phenol, compds.

RL: DEV (Device component use); MOA (Modifier or additive use); PRP (Properties); USES (Uses)

(blocking agent; composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)

IT 25322-68-3, Polyethylene glycol

RL: RCT (Reactant); RACT (Reactant or reagent)

(composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)

IT 7791-03-9, **Lithium** perchlorate (LiClO₄)

RL: DEV (Device component use); MOA (Modifier or additive use); PRP (Properties); USES (Uses)

(electrolyte; composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)

L69 ANSWER 14 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:31174 CAPLUS

DN 136:72349

ED Entered STN: 11 Jan 2002

TI Nonaqueous electrolyte secondary **battery** and process for the preparation thereof

IN Okada, Mikio

PA Japan Storage Battery Company Limited, Japan

SO Eur. Pat. Appl., 20 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM H01M010-40

ICS H01M004-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1170816	A2	20020109	EP 2001-116484	20010706
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2002237293	A2	20020823	JP 2001-194644	20010627
	CN 1332484	A	20020123	CN 2001-120039	20010706
	US 2002018935	A1	20020214	US 2001-899208	20010706
PRAI	JP 2000-205502	A	20000706		
	JP 2000-373857	A	20001208		
AB	In accordance with the nonaq. electrolyte secondary battery of the invention and the process for the preparation thereof, charging is carried				

out with a combination of a pos. **electrode** provided with excess **lithium** and a neg. **electrode** in order to cause **lithium** to be **deposited** on the neg. **electrode**. Accordingly, no oxidized surface film is interposed between **lithium** and the current collector of neg. **electrode** or the neg. active material layer as in the case where a metallic **lithium foil** is **laminated** on the neg. **electrode**. In this arrangement, a **battery** having a small internal resistance can be provided. Since the deposition of **lithium** is conducted in the assembled **battery**, **lithium** does not come in contact with air, preventing the formation of a thick ununiform oxidized film on the surface thereof. Thus, the deposition of dendrite can be inhibited, making it possible to inhibit the drop of **battery** capacity and hence provide a **battery** having an excellent cycle life performance. Further, **lithium** can be retained on the neg. **electrode** in an amount excess to the capacity of the pos. **electrode**. Accordingly, even when **lithium** is lost due to the deposition of dendrite or the reaction with the electrolyte solution, the drop of **battery** capacity can be inhibited because the neg. **electrode** is provided with excess **lithium**.

- ST **lithium nonaq electrolyte secondary battery**
fabrication
- IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(binder; process for fabrication of nonaq. electrolyte secondary **battery**)
- IT Secondary **batteries**
(**lithium**; process for fabrication of nonaq. electrolyte secondary **battery**)
- IT Polymer electrolytes
(process for fabrication of nonaq. electrolyte secondary **battery**)
- IT Carbon black, uses
RL: MOA (Modifier or additive use); USES (Uses)
(process for fabrication of nonaq. electrolyte secondary **battery**)
- IT 24937-79-9, PvdF
RL: TEM (Technical or engineered material use); USES (Uses)
(binder; process for fabrication of nonaq. electrolyte secondary **battery**)
- IT 96-49-1, Ethylene carbonate 110-71-4 7429-90-5, Aluminum, uses 7439-93-2, **Lithium**, uses 7440-50-8, **Copper**, uses 7782-42-5, Graphite, uses 9002-88-4, Polyethylene 11115-92-7, Iron hydroxide oxide 12031-65-1, **Lithium nickel oxide** Li₂NiO₂ 21324-40-3, **Lithium hexafluorophosphate** 39300-70-4, **Lithium nickel oxide** 52627-24-4, **Cobalt lithium oxide** 169199-66-0, **Lithium nickel oxide** Li_{1.2}NiO₂ 314020-48-9, **Lithium nickel oxide** Li_{1.4}NiO₂ 384818-48-8, **Lithium nickel oxide** (Li_{1.6}NiO₂) 384818-49-9, **Lithium**

nickel oxide (Li1.8NiO2)

RL: DEV (Device component use); USES (Uses)

(process for fabrication of nonaq. electrolyte secondary
battery)

IT 145826-81-9

RL: MOA (Modifier or additive use); USES (Uses)

(process for fabrication of nonaq. electrolyte secondary
battery)

L69 ANSWER 15 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2002-280557 [32] WPIX

DNN N2002-219146 DNC C2002-082489

TI Manufacture of organic electronic device e.g light emitting diode,
involves **depositing electronic** elements on exposed
electrode of composite structure comprising adhesive-
coated patterned release liner on **electrode**.

DC A85 L03 U12 X26

IN BAUDE, P F; MCCORMICK, F B; VERNSTROM, G D

PA (MINN) 3M INNOVATIVE PROPERTIES CO

CYC 94

PI WO 2002005361 A1 20020117 (200232)* EN 33p H01L051-20

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ
NL OA PT SD SE SL SZ TR TZ UG ZW

W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM
DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC
LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE
SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

AU 2001025741 A 20020121 (200234) H01L051-20

EP 1299913 A1 20030409 (200325) EN H01L051-20

R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
RO SE SI TR

KR 2003031116 A 20030418 (200353) H05B033-10

JP 2004503066 W 20040129 (200413) 49p H05B033-04

ADT WO 2002005361 A1 WO 2000-US31393 20001115; AU 2001025741 A AU 2001-25741
20001115; EP 1299913 A1 EP 2000-989200 20001115, WO 2000-US31393 20001115;
KR 2003031116 A KR 2003-700344 20030110; JP 2004503066 W WO 2000-US31393
20001115, JP 2002-509116 20001115

FDT AU 2001025741 A Based on WO 2002005361; EP 1299913 A1 Based on WO
2002005361; JP 2004503066 W Based on WO 2002005361

PRAI US 2000-614993 20000712

IC ICM H01L051-20; H05B033-04; H05B033-10

ICS C09K011-06; H01L051-40; H05B033-14

AB WO 200205361 A UPAB: 20020521

NOVELTY - Adhesive-coated side of a patterned release liner is
laminated on an **electrode** substrate to form a composite
structure (S) having at least a portion of exposed **electrode**.
Organic **electronic** elements are **deposited** on exposed
electrode of the structure (S). The liner is removed from
structure (S) and a sealing layer is adhered to exposed adhesive of
structure (S), to manufacture organic electronic device.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for
article comprising an organic electronic device which has layers between

anode and **cathode** surrounded by an adhesive layer. The circumference of the adhesive layer is equal to that of one or both of the **electrode** substrate or sealing layer.

USE - For manufacture of an organic electronic device e.g. organic light emitting diodes.

ADVANTAGE - Robust encapsulated organic electronic devices in situ edge sealed and having structural integrity and high life time is manufactured continuously. The organic electronic device is manufactured without exposure to the atmosphere at any time during the process by conducting the deposition steps in vacuum. Because the organic electronic device is not exposed to the atmosphere during manufacture, air and water sensitive materials can be used in the organic electronic device. The organic electronic device can easily made in any desired shape and continuously in a roll-to-roll process and can be made on a flexible substrate.

DESCRIPTION OF DRAWING(S) - The drawing shows the drawing of the substrate with adhesive coated liner mask.
substrate 12

patterned adhesive 14

release liner 15

Dwg.1/12

FS CPI EPI

FA AB; GI

MC CPI: A11-B09A2; A11-C01C; A12-E01; A12-E11A; L04-C20A; L04-E03A

EPI: U12-A01A1X; U12-A01A2; U12-B03C; X26-H

L69 ANSWER 16 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2002-414814 [44] WPIX

DNN N2002-326217 DNC C2002-117122

TI Spinel-type **lithium**-manganese secondary cell for secondary **battery** employed in e.g., motor-driven vehicle, has conductive positive **electrode** member made of aluminum alloy mixed with manganese.

DC L03 Q13 Q14 X16 X21

IN SUZUKI, H; WATANABE, H

PA (NIDE) NEC CORP; (NIDE) NEC TOKIN CORP

CYC 4

PI US 2002045092 A1 20020418 (200244)* 13p H01M002-02

JP 2002117906 A 20020419 (200244) 9p H01M010-40

CN 1348228 A 20020508 (200253) H01M010-36

US 6558834 B2 20030506 (200338) H01M002-30

TW 540180 A 20030701 (200379) H01M004-40

ADT US 2002045092 A1 US 2001-967120 20010928; JP 2002117906 A JP 2000-307776 20001006; CN 1348228 A CN 2001-142293 20010927; US 6558834 B2 US 2001-967120 20010928; TW 540180 A TW 2001-122336 20010910

PRAI JP 2000-307776 20001006

IC ICM H01M002-02; H01M002-30; H01M004-40; H01M010-36; H01M010-40

ICS B60K001-04; B60K006-02; B60L011-18; H01M002-06; H01M002-08;

H01M002-20; H01M002-32; H01M004-66

AB US2002045092 A UPAB: 20020711

NOVELTY - A spinel-type **lithium**-manganese secondary cell includes a conductive **anode** member mounted in a through hole of

a conductive cell casing by an insulating assembly. The conductive positive **electrode** member is made of an aluminum alloy mixed with manganese.

DETAILED DESCRIPTION - A spinel-type **lithium-manganese** (LiMn) secondary cell comprises a conductive cell casing (101) having a through hole (105) defined in one of its ends. An **electrode** unit (102) having a positive **electrode sheet** and a negative **electrode sheet** is impregnated with a non aqueous electrolytic solution between the **sheets** and is housed in the cell casing. The positive **electrode sheet** is coated on its surfaces with a powdery positive **electrode** active material. The **cathode sheet** is coated on its surfaces with a powdery **cathode** active material. The positive and negative **electrode sheets** are laminated together with a separator **sheet** interposed between them, and wound into a cylindrical column. A conductive **anode** member (201) is mounted in the through hole by an insulating assembly (202). **Anode** tabs (107) connect the positive **electrode sheet** at an opposite end of the **electrode** unit to the positive **electrode** member. **Cathode** tabs connect the **cathode sheet** at an opposite end of the **electrode** unit to the cell casing. The **anode sheet** is mainly made of aluminum. The powdery **anode** active material includes **lithium** and manganese as indispensable constituent. The conductive **anode** member is made of an aluminum alloy mixed with manganese.

INDEPENDENT CLAIMS are included for the following:

- (a) a method of manufacturing the inventive spinel-type LiMn secondary cell; and
- (b) a motor-driven mobile vehicle comprising the inventive spinel-type LiMn secondary cell, a **cathode** terminal held against and electrically connected to the cell casing of the LiMn secondary cell, a positive **electrode** terminal engaging and electrically connected to a bolt (203) of the LiMn secondary cell, a nut (204) tightening the **anode** terminal to the bolt, an electric motor energizable by electric energy supplied from the **anode** and **cathode** terminals, a vehicle body supporting at least the electric motor and the LiMn secondary cell, and a moving mechanism for moving the vehicle body with power produced by the electric motor.

USE - For use in secondary **batteries** employed in e.g., motor-driven vehicles.

ADVANTAGE - The spinel-type **lithium-manganese** secondary cell has an **anode** member with an increased mechanical strength. Since manganese mixed with the aluminum alloy of the **anode** member is an indispensable constituent of the **anode** active material, it does not cause unwanted chemical reaction e.g. electrolytic corrosion.

DESCRIPTION OF DRAWING(S) - The figure shows a vertical cross-section view of an internal structure of the **lithium-manganese** secondary cell.

conductive cell casing 101
electrode unit 102

through hole 105
anode tabs 107
conductive positive **electrode** member 201
insulating assembly 202
bolt 203
nut 204
soft closing members 205, 206
strong retaining members 207, 208
Dwg.3/7

FS CPI EPI GMPI
FA AB; GI
MC CPI: L03-E01B5; L03-H05
EPI: X16-E01C; X16-E02; X16-F01; X16-F01A; X21-A01F; X21-B01A

L69 ANSWER 17 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2003-236874 [23] WPIX

DNC C2003-060462

TI Coin-shaped **lithium ion secondary battery**.

DC A85 L03 X16

IN KIM, Y D; LEE, Y M; YOON, H G

PA (KOPO-N) KOREA POWERCELL INC

CYC 1

PI KR 2002088469 A 20021129 (200323)* 1p H01M010-36
KR 393484 B 20030806 (200412) H01M010-36

ADT KR 2002088469 A KR 2001-26935 20010517; KR 393484 B KR 2001-26935 20010517

FDT KR 393484 B Previous Publ. KR 2002088469

PRAI KR 2001-26935 20010517

IC ICM H01M010-36

AB KR2002088469 A UPAB: 20030407

NOVELTY - A coin-shaped **lithium ion secondary battery** is provided, to reduce the contact resistance by increasing the contact area of an **electrode** and a terminal and to improve the sealing property by joining a can and a cap by the mechanical joining method using a polymer resin.

DETAILED DESCRIPTION - The coin-shaped **lithium ion secondary battery** comprises a plurality of pocketing **electrode** bodies; a plurality of secondary **electrode plates** which are **laminated** alternately with the each pocketing **electrode** body; a metal can(10) which receives the **laminated** body consisting of the pocketing **electrode** bodies and the secondary **electrode plates**; a metal cap(20); and an electrolyte solution injected into the **laminated** body.

The can(10) and the cap(20) are electrically insulated each other by a gasket(30). The can(10) is connected with a metal **foil**(320) surrounding the projected part of negative **electrode plates**, and the cap(20) is connected with the metal **foil**(310) surrounding the projected part of positive **electrode plates**, wherein the can(10) and the cap(20) act as a terminal.

Dwg.1/10

FS CPI EPI
FA AB; GI

MC CPI: A12-E06C; L03-E01D1
EPI: X16-B01F1; X16-F01F1

L69 ANSWER 18 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2002-744914 [81] WPIX
DNN N2002-586838

TI Non-aqueous electrolyte **battery** for electronic clock, has
lithium alloy layer formed on positive **electrode** side of
lithium plate.

DC X16

PA (HITM) HITACHI MAXELL KK

CYC 1

PI JP 2002246014 A 20020830 (200281)* 8p H01M004-06

ADT JP 2002246014 A JP 2001-373600 20011207

PRAI JP 2000-375440 20001211

IC ICM H01M004-06

ICS H01M004-02; H01M004-04; H01M004-12; H01M004-40; H01M006-16;
H01M010-40

AB JP2002246014 A UPAB: 20021216

NOVELTY - A **lithium** alloy layer is formed on the positive
electrode side of a **lithium plate** (20). An
aluminum **foil** (21) is **laminated** on the negative
electrode side of the **lithium plate**.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for
non-aqueous electrolyte **battery** manufacturing method.

USE - Non-aqueous electrolyte **battery** for electronic clock,
memory backup, etc.

ADVANTAGE - Prevents the generation of punching dregs in
lithium plate.

DESCRIPTION OF DRAWING(S) - The figure shows the top view of the
metallic **foil laminated** on the **lithium**
plate. (Drawing includes non-English language text).

Lithium plate 20

Aluminum foil 21

Dwg.5/9

FS EPI

FA AB; GI

MC EPI: X16-A02; X16-B01F; X16-E01; X16-E01C; X16-E01G; X16-E03

L69 ANSWER 19 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2002-647516 [70] WPIX
DNN N2002-512197

TI Fold-up type **lithium** cell manufacturing method for mobile
telephone, involves arranging active material **coated** edge
portion of negative **electrode** overlapped with active material of
positive **electrode**.

DC T01 W01 X16

PA (DAIE) MITSUBISHI CABLE IND LTD

CYC 1

PI JP 2002157997 A 20020531 (200270)* 9p H01M004-04

ADT JP 2002157997 A JP 2000-350021 20001116

PRAI JP 2000-350021 20001116

IC ICM H01M004-04
ICS H01M002-26; H01M002-30; H01M010-40
AB JP2002157997 A UPAB: 20021031
NOVELTY - A strip-shaped non-coated portion (7) is provided on both sides of negative plate (1). The strip-shaped non-coated portion (8) of positive plate (2) broader than strip-shaped non-coated portion (7) is **laminated** through adhesive so that the active material coating edge portion of the negative plate overlaps with active material non-coated portion of positive plate.
USE - For portable electronic devices such as mobile telephone, notebook computer.
ADVANTAGE - As there is no need for piercing and piling up each **electrode sheet** on small piece, handling property of the process is improved. As **electrode sheet** are folded along strip-shaped non-coated portion, bending processing is performed easily and deletion of active material by bending is inhibited thereby product yield of **battery** is improved. Generation of dendrite is inhibited thereby improving the charging and discharging cycle characteristics of **battery**.
DESCRIPTION OF DRAWING(S) - The figure shows the top view of **battery**. (Drawing includes non-English language text).
Negative plate 1
Positive plate 2
Strip-shaped non-coated portions 7,8
Dwg.3/14
FS EPI
FA AB; GI
MC EPI: T01-M06A1; W01-C01D3C; W01-C01E5B; X16-B01F; X16-E01G; X16-F03

L69 ANSWER 20 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2003-250080 [25] WPIX
DNN N2003-198577 DNC C2003-064853
TI Production of a separator/**electrode** composite for **lithium batteries**, involves coating a polymer matrix containing finely dispersed electrochemically-active material directly onto a porous separator.
DC A14 A85 L03 P42 X16
IN BIRKE, P; BIRKE-SALAM, F; HOLL, K; ILIC, D; JOAS, A; STELZIG, H
PA (MICR-N) MICRO CELL AG; (MICR-N) MICROBATTERIE GMBH
CYC 30
PI EP 1261046 A1 20021127 (200325)* DE 7p H01M002-16
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
RO SE SI TR
DE 10125619 A1 20021205 (200325) H01M010-38
JP 2003022800 A 20030124 (200325) 5p H01M004-04
KR 2002090117 A 20021130 (200325) H01M010-38
US 2002177037 A1 20021128 (200325) H01M004-58
CN 1388606 A 20030101 (200328) H01M010-38
ADT EP 1261046 A1 EP 2002-9822 20020502; DE 10125619 A1 DE 2001-10125619
20010525; JP 2003022800 A JP 2002-150999 20020524; KR 2002090117 A KR
2002-25433 20020509; US 2002177037 A1 US 2002-152954 20020521; CN 1388606
A CN 2002-120194 20020524

PRAI DE 2001-10125619 20010525

IC ICM H01M002-16; H01M004-04; H01M004-58; H01M010-38

ICS B05D005-12; H01M004-02; H01M004-38; H01M004-50; H01M004-62;
H01M010-40

AB EP 1261046 A UPAB: 20030416

NOVELTY - A method for the production of a separator/**electrode** composite for **galvanic elements** containing **lithium-intercalating electrode(s)** with electrochemically-active materials finely dispersed in a polymer matrix involves coating the active material-containing polymer matrix directly onto the porous separator or onto a layer of solid ionic conductor.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for **galvanic elements** with **electrode/separator** composite(s) obtained by this method.

USE - In thin-layer cells, especially e.g. **lithium ion batteries**.

ADVANTAGE - A simple method for the production of separator/**electrode** composites which can be carried out under any atmosphere with a wide range of **electrode** materials.

DESCRIPTION OF DRAWING(S) - Voltage/capacity curve for a flat cell **lithium battery** containing a separator/**electrode** composite as described.

voltage U

standardized capacity CN

curve for test cell 1

curve for a button cell made by the standard industrial method 2

Dwg.1/1

FS CPI EPI GMPI

FA AB; GI

MC CPI: A12-E06A; A12-E06B; L03-E01A; L03-E01B5B

EPI: X16-E01C; X16-E08A; X16-F02

L69 ANSWER 21 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:759860 CAPLUS

DN 138:92738

ED Entered STN: 07 Oct 2002

TI **Coatings** for **electrochemical** applications

AU Despotopoulou, Marina; Burchill, Michael T.

CS ATOFINA Chemicals Inc., King of Prussia, PA, 19406, USA

SO Progress in Organic Coatings (2002), 45(2-3), 119-126

CODEN: POGCAT; ISSN: 0300-9440

PB Elsevier Science B.V.

DT Journal

LA English

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38, 72, 76

AB The **anode** and **cathode** of **lithium ion**

batteries are typically cast onto metal current collectors as a formulated **coating** containing the **electrochem.** active ingredients and polyvinylidene fluoride (PVDF) as the binder [Proceedings of the Fourth International **Batteries** 2001 Symposium, Paris, France, Apr. 2001]. Addnl., PVDF is used in the production of gel

electrolytes for polymer Li ion **batteries** [Solid State Ionics 86(1996) 49]. With the knowledge generated in the labs., new resins were specifically designed to offer improved performance. **Anodes** for Li ion **batteries** were fabricated by mixing MCMB graphite in a solution of poly(vinylidene fluoride) PVDF in N-methylpyrrolidone in a ball mill. A clean Cu foil was coated with the dispersion and placed in an oven to dry at 150° for 30 min. The adhesion of PVDF coating on Cu was measured by peeling strength tests and optimum graphite concentration was determined as 5

g PVDF

for 10 g graphite, to attain conductivity suitable for **battery** use. The **coated electrodes** were subjected to pressing/**lamination** prior to final assembly into **batteries** to minimize voids. Gel separators were fabricated using microporous PVDF films with di-Bu phthalate as plasticizer with electrolyte of LiPF₆ in ethylene carbonate/propylene carbonate. The gel electrolyte was enclosed in a button-cell with stainless steel **electrodes** and the complex impedance and resistance of the electrolyte were measured. The swelling and aging of the gel electrolyte were also studied.

ST **coating electrochem**; polyvinylidene fluoride graphite slurry **coating copper electrode**; elec cond adhesion PVDF graphite **coating copper electrode**; gel electrolyte PVDF **lithium hexafluorophosphate cond swelling aging; lithium battery electrode** electrolyte PVDF based component

IT Fluoropolymers, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)

(Kynar, complex with mesophase carbon microbeads, **anode coating**; fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF₆ gels and conductivity and aging stability of assembled **batteries**)

IT Adhesion, physical
Aging, materials
Battery anodes
Battery cathodes
Battery electrolytes
Electric conductivity
Electric impedance
Secondary **battery** separators
Swelling, physical

(fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF₆ gels and conductivity and aging stability of assembled **batteries**)

IT Fluoropolymers, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)

(fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF₆ gels

- and conductivity and aging stability of assembled **batteries**)
- IT 24937-79-9, PVDF
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(Kynar, complex with mesophase carbon microbeads, **anode coating**; fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels and conductivity and aging stability of assembled **batteries**)
- IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate
RL: DEV (Device component use); USES (Uses)
(fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels and conductivity and aging stability of assembled **batteries**)
- IT 7440-50-8, **Copper**, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels and conductivity and aging stability of assembled **batteries**)
- IT 21324-40-3, **Lithium** hexafluorophosphate (LiPF6)
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels and conductivity and aging stability of assembled **batteries**)
- IT 84-74-2, Dibutyl phthalate
RL: NUU (Other use, unclassified); USES (Uses)
(gel plasticizer, extracted before measurements; fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels and conductivity and aging stability of assembled **batteries**)
- IT 7782-42-5D, Graphite, complex with Kynar
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(mesophase microbeads; fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels and conductivity and aging stability of assembled **batteries**)
- IT 872-50-4, N-Methylpyrrolidone, uses
RL: NUU (Other use, unclassified); USES (Uses)
(slurry solvent; fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels and conductivity and aging stability of assembled **batteries**)

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD

- RE
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 - (2) Barriere, B; Proceedings of the Fourth International Batteries 2001

Symposium 2001

- (3) Boyer, R; Macromolecules 1985, V18, P427 CAPLUS
- (4) Choe, H; Electrochim Acta 1995, V40, P2289 CAPLUS
- (5) Ebner, W; Solid State Ionics 1994, V69, P238 CAPLUS
- (6) Gozdz, A; US 5296318 1994 CAPLUS
- (7) Gozdz, A; US 5540741 1996 CAPLUS
- (8) Ozawa, K; Proceedings of the 10th International Seminar and Exhibit on Primary and Secondary Batteries 1993
- (9) Ozawa, K; Solid State Ionics 1994, V69, P212 CAPLUS
- (10) Tarascon, J; J Electrochem Soc 1991, V138, P2859 CAPLUS
- (11) Tarascon, J; Solid State Ionics 1996, V86, P49
- (12) Tazaki, M; J Appl Polym Sci 1977, V65(8), P1517
- (13) Tsuchida, E; Electrochim Acta 1983, V28(5), P591 CAPLUS

L69 ANSWER 22 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:306576 CAPLUS

DN 139:182767

ED Entered STN: 22 Apr 2003

TI Li3PO4:N/LiCoO2 coatings for thin film **batteries**

AU Gross, M. E.; Martin, P. M.; Stewart, D. C.; Johnston, J. W.; Windisch, C. F.; Graff, G. L.; Rissmiller, P. L.; Dudeck, E. L.

CS Pacific Northwest National Laboratory, Richland, WA, USA

SO Annual Technical Conference Proceedings - Society of Vacuum Coaters (2002), 45th, 119-124

CODEN: ATCCDI; ISSN: 0731-1699

PB Society of Vacuum Coaters

DT Journal

LA English

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology) Section cross-reference(s): 57

AB Li3PO4:N (LIPON)/Li1.04CoO2 thin film **battery** structures were deposited up to 2 μ m thick were deposited using a 15.2 cm diameter Li2.9PO3.5 pressed powder target for reactive RF magnetron sputtering. Li1.04CoO2 thin films were deposited using a 15.2 cm diameter LiCoO2 pressed powder target. LIPON films were deposited in an ultra pure N2 atmosphere and LiCoO2 films were deposited in an ultra pure atmospheric of Ar + O2. Total chamber pressure during deposition ranged between 5 and 20 mtorr and RF power to the sputtering targets ranged from 100 W to 450 W. Because XPS gave ambiguous compositional results, the films were optimized for a.c. and d.c. conductivity Elec. conductivity was extremely sensitive to deposition conditions, deposition rate, sputtering gas pressure, and reactive gas partial pressure. AC conductivity measurements were made at a frequency of 10 kHz, and were correlated to d.c. conductivity measurements. LIPON films had

the

highest conductivities in the 660 nS cm-1 range and the highest a.c.

conductivity

of Li1.04CoO2 films was .apprx.0.24 S cm-1. Earlier work showed the most conductive films were deposited at 20 mtorr pressures and target powers of 100 W. This work has scaled up to conductive films being deposited at 7.5 mtorr pressures and target powers of 400 W. X-ray diffraction anal. showed that the films were mostly amorphous. Films deposited under these conditions were transparent at visible wavelengths with a refractive index

- of 1.6. Lower conductivity films were brownish in appearance and had less transmission than films with high conductivity The rechargeable **battery** structure consisting of an alumina substrate, gold current collector, 0.5- μ m Li_{1.04}CoO₂ **cathode**, 1.2- μ m LIPON electrolyte, Li metal **anode**, and a **copper** current collector are currently under test. Early thin film **battery** cycle testing was successful, addnl. testing is on-going. Performance results are correlated with film properties and reported. Future work will involve optimization of **battery** performance on a large scale and scale up of the deposition process to include flexible web processing.
- ST Li₃PO₄ LiCoO₂ coating thin film reactive RF magnetron sputtering; XRD secondary lithium **battery** electrolyte **electrode** cond SEM voltammetry
- IT **Battery electrodes**
Battery electrolytes
 Cyclic voltammetry
 Electric conductivity
 Electric impedance
 Secondary **batteries**
 (Li₃PO₄:N/LiCoO₂ **coatings** for thin film secondary **batteries**)
- IT Ceramics
 (coated substrate; Li₃PO₄:N/LiCoO₂ **coatings** for thin film secondary **batteries**)
- IT Polyimides, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (coated substrate; Li₃PO₄:N/LiCoO₂ **coatings** for thin film secondary **batteries**)
- IT Glass, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (gold-coated, coated substrate; Li₃PO₄:N/LiCoO₂ **coatings** for thin film secondary **batteries**)
- IT Reactive sputtering
 (radio-frequency, magnetron; Li₃PO₄:N/LiCoO₂ **coatings** for thin film secondary **batteries**)
- IT Magnetron sputtering
 (radio-frequency, reactive; Li₃PO₄:N/LiCoO₂ **coatings** for thin film secondary **batteries**)
- IT **Crystal structure**
 (rhombohedral (LiCoO₂ film); Li₃PO₄:N/LiCoO₂ **coatings** for thin film secondary **batteries**)
- IT 203402-92-0P, Lithium nitride phosphate
 RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (LIPON, sputtered layer; Li₃PO₄:N/LiCoO₂ **coatings** for thin film secondary **batteries**)
- IT 7727-37-9, Nitrogen, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (Li₃PO₄:N/LiCoO₂ **coatings** for thin film secondary **batteries**)
- IT 7439-93-2, Lithium, uses 12142-83-5, Tin

nitride (Sn₃N₄)
RL: DEV (Device component use); USES (Uses)
(**anode**; Li₃PO₄:N/LiCoO₂ coatings for thin film secondary
batteries)

IT 1344-28-1, Alumina, uses 7440-32-6, Titanium, uses
60676-86-0, Fused silica
RL: DEV (Device component use); PEP (Physical, engineering or chemical
process); PYP (Physical process); PROC (Process); USES (Uses)
(coated substrate; Li₃PO₄:N/LiCoO₂ coatings for thin film secondary
batteries)

IT 7429-90-5, Aluminum, uses
RL: DEV (Device component use); USES (Uses)
(**foil**; Li₃PO₄:N/LiCoO₂ coatings for thin film secondary
batteries)

IT 7440-50-8, Copper, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical
process); PYP (Physical process); PROC (Process); USES (Uses)
(gold-coated, coated substrate, and **anode**; Li₃PO₄:N/LiCoO₂
coatings for thin film secondary **batteries**)

IT 12190-79-3, Cobalt lithium oxide (CoLiO₂)
RL: CPS (Chemical process); PEP (Physical, engineering or chemical
process); PRP (Properties); PYP (Physical process); PROC (Process)
(pressed powder target; Li₃PO₄:N/LiCoO₂ coatings for thin film
secondary **batteries**)

IT 581094-51-1, Lithium metaphosphate oxide (Li_{2.9}(PO₃)O_{0.5})
RL: CPS (Chemical process); PEP (Physical, engineering or chemical
process); PYP (Physical process); PROC (Process)
(pressed powder target; Li₃PO₄:N/LiCoO₂ coatings for thin film
secondary **batteries**)

IT 152829-46-4P, Cobalt lithium oxide (CoLi_{1.04}O₂)
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic
preparation); PREP (Preparation); USES (Uses)
(sputtered layer, **cathode**; Li₃PO₄:N/LiCoO₂ coatings for thin
film secondary **batteries**)

IT 7440-57-5, Gold, uses
RL: DEV (Device component use); USES (Uses)
(substrate coating; Li₃PO₄:N/LiCoO₂ coatings for thin film secondary
batteries)

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Bates, J; J Vac Sci Technol 1996, VA14(1), P34
- (2) Bates, J; Solid State Ionics 1992, V53-56, P647 CAPLUS
- (3) Bates, J; Solid State Ionics 2000, V135(1-4), P33 CAPLUS
- (4) Dudney, N; Curr Opin Solid State Mater Sci 1999, V4(5), P479
- (5) Dudney, N; J Vac Sci Technol 1993, VA11(2), P377
- (6) John, B; J Amer Ceramic Soc 1993, V76(4), P929
- (7) Martin, P; J Vac Sci Technol A 1997, V15(3), P1098 CAPLUS

L69 ANSWER 23 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 3
AN 2001:64322 CAPLUS
DN 134:103336
ED Entered STN: 26 Jan 2001

TI **Lithium thin film lamination technology on electrode to increase battery capacity**
 IN Hisashi, Tsukamoto; Chananit, Sintuu
 PA Quallion, LLC, USA
 SO PCT Int. Appl., 14 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM H01M
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001006578	A2	20010125	WO 2000-US19348	20000714
	WO 2001006578	A3	20011011		
	W:	AE, AL, AU, BA, BB, BG, BR, CA, CN, CR, CU, CZ, DM, EE, GD, GE, HR, HU, ID, IL, IN, IS, JP, KP, KR, LC, LK, LR, LS, LT, LV, MA, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, TR, TT, UA, US, UZ, VN, YU, ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
	AU 2000061027	A5	20010205	AU 2000-61027	20000714
PRAI	US 1999-144146P	P	19990716		
	WO 2000-US19348	W	20000714		

AB **Lithium is laminated onto or into an electrode structure comprising a metal conducting layer with an active material mixture of, for example, a nanocomposite of silicon monoxide, together with graphite and a binder, such as polyvinyl di-fluoride (PVDF). The lamination of lithium metal onto or into the electrode structure will reduce the amount of irreversible capacity by readily supplying a sufficient amount of lithium ions to form the initial solid electrolyte interface. In order to laminate lithium onto or into the neg. electrode, the lithium is first deposited onto a carrier, which is then used to laminate the lithium onto or into the electrode structure. The next step is placing the coated electrode material and the lithium-deposited plastic between two rollers or two plates. The rollers or plates are heated to about 120° or within the range of 25-250°. A pressure of 50-600 kg/cm² is applied to the rollers. The speed of movement of the materials through the roller pair or the plate pair is in the range of 10 cm/min to 5 m/min. The method can be used for either single-sided or double-sided coating. Using this technol. alone, the battery capacity can increase by 7% to 15%.**

ST **battery electrode lithium thin film lamination**
 IT **Lamination**
 (lithium thin film lamination technol. on electrode to increase battery capacity)
 IT Polyesters, uses
 Polyimides, uses

RL: TEM (Technical or engineered material use); USES (Uses)
(**lithium** thin film **lamination** technol. on
electrode to increase **battery** capacity)

IT Secondary **batteries**
(**lithium**; **lithium** thin film **lamination**
technol. on **electrode** to increase **battery** capacity)

IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(nanocomposite; **lithium** thin film **lamination**
technol. on **electrode** to increase **battery** capacity)

IT 7439-93-2, **Lithium**, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical
process); PROC (Process); USES (Uses)
(**lithium** thin film **lamination** technol. on
electrode to increase **battery** capacity)

IT 7440-50-8, **Copper**, uses
RL: DEV (Device component use); TEM (Technical or engineered material
use); USES (Uses)
(**lithium** thin film **lamination** technol. on
electrode to increase **battery** capacity)

IT 25038-59-9, Polyethylene terephthalate, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**lithium** thin film **lamination** technol. on
electrode to increase **battery** capacity)

IT 113443-18-8, Silicon monoxide
RL: DEV (Device component use); USES (Uses)
(nanocomposite; **lithium** thin film **lamination**
technol. on **electrode** to increase **battery** capacity)

IT 24937-79-9, PvdF
RL: TEM (Technical or engineered material use); USES (Uses)
(nanocomposite; **lithium** thin film **lamination**
technol. on **electrode** to increase **battery** capacity)

IT 9003-07-0, Polypropylene
RL: TEM (Technical or engineered material use); USES (Uses)
(**sheet**; **lithium** thin film **lamination**
technol. on **electrode** to increase **battery** capacity)

L69 ANSWER 24 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:919189 CAPLUS
DN 136:22019
ED Entered STN: 21 Dec 2001
TI **Cathode** and **anode** plates sandwiched between porous
metal supports, their manufacture, and nonaqueous electrolyte secondary
battery using them
IN Seyama, Yukitaka
PA Japan Storage Battery Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M004-02
ICS H01M004-02; H01M004-04; H01M004-58; H01M004-74; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	JP 2001351613	A2	20011221	JP 2000-169422	20000606
PRAI	JP 2000-169422		20000606		
AB	The cathode (anode) plates are manufactured by applying cathode (anode) active material pastes on two pieces of porous metal supports, followed by lamination to face the paste layer each other. The battery using the electrode plates shows long cycle life.				
ST	cathode anode lithium battery				
	porous metal support				
IT	Secondary batteries				
	(lithium; manufacture of cathode and anode plates sandwiched between porous metal supports, for nonaq. electrolyte secondary lithium battery)				
IT	Battery anodes				
	Battery cathodes				
	(manufacture of cathode and anode plates sandwiched between porous metal supports, for nonaq. electrolyte secondary lithium battery)				
IT	7782-42-5, Graphite, uses				
	RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)				
	(anode active material; manufacture of cathode and anode plates sandwiched between porous metal supports, for nonaq. electrolyte secondary lithium battery)				
IT	52627-24-4, Cobalt lithium oxide				
	RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)				
	(cathode active material; manufacture of cathode and anode plates sandwiched between porous metal supports, for nonaq. electrolyte secondary lithium battery)				
IT	7429-90-5, Aluminum, uses				
	RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)				
	(mesh; manufacture of cathode and anode plates sandwiched between porous metal supports, for nonaq. electrolyte secondary lithium battery)				
IT	7440-50-8, Copper, uses				
	RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)				
	(pierced sheet; manufacture of cathode and anode plates sandwiched between porous metal supports, for nonaq. electrolyte secondary lithium battery)				

L69 ANSWER 25 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2001:745653 CAPLUS

DN 135:291368

ED Entered STN: 12 Oct 2001

TI Secondary lithium ion **batteries** with high capacity and

safety

IN Yamauchi, Takashi; Mizushima, Koichi; Kanei, Hideyuki; Sato, Yuji;
Igasaki, Yoshiyuki

PA Toshiba Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01M004-02

ICS H01M004-58; H01M004-64; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	JP 2001283830	A2	20011012	JP 2000-90966	20000329
PRAI	JP 2000-90966		20000329		

AB The **batteries** use **electrode** stacks comprising **cathode sheets** coated with Li_xMO_2 (M = transition metal, preferably, Mn, Co, Ni) and **anode sheets** coated with **Li-intercalating** C materials and have the **cathode sheet** current collector length l (m) and thickness S (μm) satisfying the relations of $S \geq 33.3l$ and $1.5 \leq 0.217/(\text{hivin.C}/h) \leq 1 \leq 2.36 \cdot \text{hivin.C}/hL$ [hivin.C = discharge capacity (Ah); h = **electrode** height (m); L = **cathode** active material layer thickness (μm)]. The **batteries** show high capacity and no inflammation when short-circuits occur.

ST **lithium battery cathode** current collector
safety; carbon **anode lithium battery**
capacity safety

IT Carbonaceous materials (technological products)
RL: DEV (Device component use); USES (Uses)
(**anodes**; secondary **Li ion batteries** with
high capacity and safety)

IT Transition metal oxides
RL: DEV (Device component use); USES (Uses)
(**cathodes**; secondary **Li ion batteries**
with high capacity and safety)

IT Secondary **batteries**
(**lithium**; secondary **Li ion batteries** with
high capacity and safety)

IT **Battery anodes**
Battery cathodes

Safety

(secondary **Li ion batteries** with high capacity and
safety)

IT **12190-79-3P, Cobalt lithium oxide** (CoLiO_2)
RL: DEV (Device component use); PNU (Preparation, unclassified); PREP
(Preparation); USES (Uses)
(**cathode**; secondary **Li ion batteries** with
high capacity and safety)

IT 7439-96-5, Manganese, uses 7440-02-0, Nickel, uses
 RL: DEV (Device component use); USES (Uses)
 (lithium mixed oxides containing, cathodes; secondary
 Li ion batteries with high capacity and safety)

L69 ANSWER 26 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
 AN 2001:635700 CAPLUS
 DN 135:197993
 ED Entered STN: 31 Aug 2001
 TI **Electrodes** for secondary **lithium batteries**,
 their manufacture, and secondary **batteries**
 IN Hataya, Koji
 PA Furukawa Electric Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 8 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01M004-02
 ICS H01M004-04; H01M004-58; H01M004-70; H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001236945	A2	20010831	JP 2000-43689	20000221
PRAI	JP 2000-43689		20000221		

AB The **electrodes** comprise metal **foils** having
coatings containing **Li-intercalating** active mass
 on 1 or both sides. The **foils** have ≥ 1 through holes or
 slits having maximum width or diameter of $< 100 \mu\text{m}$ per area of diameter $< 20 \text{ mm}$.
 The **electrodes** are manufactured by formation of holes or slits in
 metal **foils** having active mass coatings. **Lithium**
batteries with **anodes** and/or **cathodes**
 comprising the above stated **electrodes** are also claimed.
 Permeation of the electrolytes throughout the **batteries** is
 improved to give **batteries** with uniform quality and excellent
 elec. performance.

ST secondary **lithium battery electrode** holed
 collector

IT Secondary **batteries**
 (lithium; secondary **lithium batteries**
 with active mass-coated **electrodes** having slits or
 through holes for easy permeation of electrolytes)

IT **Foils**
 (metal **electrode** collectors; secondary **lithium**
batteries with active mass-coated **electrodes**
 having slits or through holes for easy permeation of electrolytes)

IT **Battery electrodes**
 (secondary **lithium batteries** with active mass-
 coated **electrodes** having slits or through holes for
 easy permeation of electrolytes)

L69 ANSWER 27 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2001:356648 CAPLUS
 DN 134:369398
 ED Entered STN: 18 May 2001
 TI Secondary **lithium battery** and its manufacture
 IN Kito, Masanobu; Nemoto, Hiroshi
 PA NGK Insulators, Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 9 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01M004-02
 ICS H01M004-04; H01M004-58; H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001135302	A2	20010518	JP 1999-310645	19991101
PRAI	JP 1999-310645		19991101		

AB The **battery** has an **electrode** comprising a pair of **electrode plates laminated** or rolled via a separator in a nonaq. electrolytic solution, in which the **cathode** active material is composed of **Li** manganate to show the resistivity (ρ) of the material layer $\leq 500 \Omega\text{-cm}$ or $\rho \leq 32500/(Y + 1.73) - 8300$ (Y = ion number of Mh based on O number 4) to the thickness direction without impregnation of the electrolytic solution. The **battery** is manufactured by sandwiching a pair of **electrode sheet** with a pressure to measure the ρ distribution on the **sheet**, followed by rolling or **laminating the electrode sheet**. The **battery** is useful for elec. or hybrid vehicles. The **battery** shows low internal resistivity and uniform product quality.

ST **battery** nonaq electrolyte **lithium manganate cathode**; **cathode resistivity battery lithium manganate**; cubic spinel **lithium manganate battery cathode**

IT Secondary **batteries**
 (button-type, cubic spinel; manufacture of secondary **lithium battery**)

IT **Battery cathodes**
 (cubic spinel; manufacture of secondary **lithium battery**)

IT Secondary **batteries**
 (**lithium**; manufacture of secondary **lithium battery** having)

IT 12057-17-9, **Lithium manganate** (LiMn_2O_4) 155472-68-7,
Lithium manganese oxide ($\text{Li}_{1.1}\text{Mn}_{1.9}\text{O}_4$) 176979-23-0,
Lithium manganese oxide ($\text{Li}_{1.15}\text{Mn}_{1.85}\text{O}_4$) 333337-19-2,
Lithium manganese nickel titanium oxide
 ($\text{LiMn}_{1.8}(\text{Ni},\text{Ti})_{0.2}\text{O}_4$) 333337-21-6

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(cubic spinel; manufacture of secondary **lithium battery**)

L69 ANSWER 28 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2002-134182 [18] WPIX

DNN N2002-101499 DNC C2002-041546

TI Manufacture of **lithium** polymer **battery** involves repeated charging of **battery** under specified conditions for gas evolution, after which cladding seal is broken to eject gas, and re-sealing cladding.

DC A85 L03 X16

PA (MATU) MATSUSHITA DENKI SANGYO KK

CYC 1

PI JP 2001283914 A 20011012 (200218)* 8p H01M010-40

ADT JP 2001283914 A JP 2000-93167 20000330

PRAI JP 2000-93167 20000330

IC ICM H01M010-40

AB JP2001283914 A UPAB: 20020319

NOVELTY - **Battery** sealed in an outer cladding (7), is charged, with initial gas evolution, till a predetermined cell voltage (more than 3.7V) is generated, followed by aging at 90-100 deg. C, for 0.5-3 hours. Then, second charging for stabilizing gas generation and **battery** characteristics, is performed, with aging at 60-70 deg. C. Part of the outer cladding is opened to eject accumulated gas, then resealed.

DETAILED DESCRIPTION - A bag-like outer cladding comprising a **laminate** of a metallic foil between resin films, seals an electricity generating element (4) consisting of a **sheet**-like positive **electrode** board, a film of polymer separator and a negative **electrode** plate. A non-aqueous **electrolyte** is also dispersed in the electricity generating element. Positive and negative **electrode** leads (5,6) are extracted externally, from sealed outer cladding, to form terminals (8,9).

USE - For **lithium** polymer **battery** having favorable **battery** characteristics.

ADVANTAGE - The thickness of the **lithium** polymer **battery** can be controlled easily, and excellent **battery** characteristics are imparted. A stable manufacture of **lithium** polymer **battery**, comprising a most suitable gel as non-aqueous electrolyte, is offered.

DESCRIPTION OF DRAWING(S) - The figure shows the top view of **lithium** polymer **battery**.

Electricity generating element 4

Positive **electrode** lead 5

Negative **electrode** lead 6

Outer cladding 7

Output terminals 8,9

Insulating protective film 10,11

Outer cladding heat-welded part P1,P2

Outer cladding bent part T

Dwg.1/2

FS CPI EPI

FA AB; GI

MC CPI: A11-B; A12-E06; L03-E03

EPI: X16-B01F1; X16-F01A; X16-J02; X16-J08

L69 ANSWER 29 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2002-125658 [17] WPIX
DNN N2002-094281 DNC C2002-038783
TI Non-aqueous secondary **battery** used for motor vehicles, has separator having preset heat shrinking rate at specified temperature and has predetermined energy capacity and volume energy density.
DC A85 L03 X16
PA (OSAG) OSAKA GAS CO LTD
CYC 1
PI JP 2001243936 A 20010907 (200217)* 7p H01M002-16
ADT JP 2001243936 A JP 2000-54189 20000229
PRAI JP 2000-54189 20000229
IC ICM H01M002-16
ICS H01M002-02; H01M010-40
AB JP2001243936 A UPAB: 20020313
NOVELTY - Non-aqueous secondary **battery** is a flat **battery** equipped with positive **electrode** (101a), negative **plate** (101b), a separator (104) and a non-aqueous electrolyte containing **lithium salt**. The **battery** has energy capacity of 30 Wh or more and volume energy density of 180 Wh/l or more. The separator is a **laminate** of two or more **sheets** and has heat shrinking rate of 5% or less along any direction at 150 deg. C.
USE - For storage systems of solar power generation systems and electric vehicles.
ADVANTAGE - The flat type **battery** has high volume energy density and excellent heat resistance. Internal short circuit is prevented at high temperature environment and the **battery** has high safety.
DESCRIPTION OF DRAWING(S) - The figure shows the structure of an **electrode laminate** accommodated inside the **battery**.
Positive **electrode** 101a
Negative plate 101b
Separator 104
Dwg.2/2
FS CPI EPI
FA AB; GI
MC CPI: A12-E06A; A12-T04C; L03-H05
EPI: X16-B01F; X16-F01; X16-F02

L69 ANSWER 30 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2002-099887 [14] WPIX
DNN N2002-073856 DNC C2002-031334
TI **Lithium** cell for portable device, has extraction part from **lamination sheet** of lead which is covered by synthetic rubber, so that **lamination sheet** along with bag-like edge part side of lead is provided externally.
DC A85 L03 X16
PA (KYOC) KYOCERA CORP
CYC 1
PI JP 2001243931 A 20010907 (200214)* 5p H01M002-06

ADT JP 2001243931 A JP 2000-50982 20000228

PRAI JP 2000-50982 20000228

IC ICM H01M002-06

ICS H01M002-02; H01M010-40

AB JP2001243931 A UPAB: 20020301

NOVELTY - **Lithium** cell has electricity generation element (2) containing electrolyte between **electrodes** with leads (3,4). The element is provided in a **battery-jar** (1) consisting of a bag-like **lamination sheet**. The extraction part from the **lamination sheet** of the lead is covered by a synthetic rubber (5), so that the **lamination sheet** along with bag-like edge part side of the lead is provided externally.

DETAILED DESCRIPTION - The **lithium** cell consists of an electricity generation element which is obtained by arranging an electrolyte between the positive **electrodes** and the negative **plates** containing leads. The leads are provided for extracting electrochemical energy externally. The electricity generation element is provided in a **battery-jar** consisting of a bag-like **lamination sheet**. The extraction part from the **lamination sheet** of the lead is covered by a synthetic rubber, so that the **lamination sheet** along with the bag-like edge part side of the lead is provided externally.

USE - For portable devices.

ADVANTAGE - A gap is generated between the **battery-jar** and the lead at the time of adhesion. Leakage of electrolyte and penetration of moisture content are prevented. Reliability of the **lithium** cell is enhanced.

DESCRIPTION OF DRAWING(S) - The figure shows the top view of the structure of the **lithium** cell.

Battery-jar 1

Electricity generation element 2

Leads 3,4

Synthetic rubber 5

Dwg.1/3

FS CPI EPI

FA AB; GI

MC CPI: A12-E04; A12-E06C; A12-S07A; L03-E01B5B; L03-E01D

EPI: X16-B01F; X16-F01

L69 ANSWER 31 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2002-002462 [01] WPIX

DNN N2002-001862 DNC C2002-001134

TI **Lithium** ion secondary **battery** consists of high boiling **electrolyte**, negative **plate** containing graphite group carbonaceous coated with amorphous coke, and positive **electrode**.

DC A85 E36 L03 X16

PA (MITU) MITSUBISHI CHEM CORP

CYC 1

PI JP 2001229924 A 20010824 (200201)* 10p H01M004-58

ADT JP 2001229924 A JP 2000-34114 20000210

PRAI JP 2000-34114 20000210

IC ICM H01M004-58

ICS C01B031-04; H01M002-02; H01M004-02; H01M010-40

AB JP2001229924 A UPAB: 20020105

NOVELTY - The **lithium ion secondary battery** consists of negative **plate**, positive **electrode** and an **electrolyte** having boiling point more than 200 deg. C. The negative active substance of negative plate is a graphite group carbonaceous coated with amorphous coke.

USE - As power unit for cam corder, audio apparatus, portable computer, portable telephone.

ADVANTAGE - The evolution of gas from high boiling organic solvent during charging is suppressed. The swelling of **battery** even at high temperature is prevented.

Dwg.0/0

FS CPI EPI

FA AB; DCN

MC CPI: A12-E06A; E31-N04B; L03-E04B

EPI: X16-B01F; X16-E01; X16-E01C; X16-F01

L69 ANSWER 32 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2001-392848 [42] WPIX

DNN N2001-289036 DNC C2001-119857

TI Secondary **battery** e.g. **lithium secondary battery** for electricity generation, has ion impermeable polymeric **sheet** having elastic deformation, placed between core surfaces of positive **electrode** and negative **plate**.

DC A85 L03 X16

PA (SAOL) SANYO ELECTRIC CO LTD

CYC 1

PI JP 2001093578 A 20010406 (200142)* 9p H01M010-40

ADT JP 2001093578 A JP 1999-266355 19990920

PRAI JP 1999-266355 19990920

IC ICM H01M010-40

ICS H01M002-22

ICA C08J005-18

AB JP2001093578 A UPAB: 20010726

NOVELTY - The secondary **battery** has a **laminate electrode** (4) which composes a **laminate** unit (40). The **laminate** unit consists of strip-shaped positive **electrode** (41) and strip-shaped negative plate (44). A ion impermeable polymeric **sheet** (47) with elastic deformation, is placed between core surfaces (42,45) and a separator (48) of ionic permeability is sandwiched between active material layers (43,46).

DETAILED DESCRIPTION - The positive **electrode** has positive **electrode** active material layer (43) **laminated** on one or both sides of core (42), and similarly the negative plate has negative plate active material layer (46) **laminated** on one or both sides of core (45).

USE - As **lithium secondary battery** for electricity generation.

ADVANTAGE - The secondary **battery** has excellent cycle characteristics during charging and discharging due to expansion-contraction of positive **electrode**.

DESCRIPTION OF DRAWING(S) - The figure shows expanded sectional view of **laminated electrode**. (The drawing includes non-English language text).

Laminated electrode 4

Laminated unit 40

Positive electrode 41

Cores 42,45

Positive electrode active material layer 43

Negative plate 44

Negative plate active material layer 46

Polymeric sheet 47

Separator 48

Dwg.1/7

FS CPI EPI

FA AB; GI

MC CPI: A99-A; L03-E01A; L03-E01B

EPI: X16-B01F; X16-F03

L69 ANSWER 33 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2001-384500 [41] WPIX

DNN N2001-282204 DNC C2001-117742

TI Flat **battery** has safety valve and heat welding resin **sheet** having lower melting point provided at the sealing portion of outer cladding case.

DC A85 L03 X16

PA (MATU) MATSUSHITA DENKI SANGYO KK

CYC 1

PI JP 2001093489 A 20010406 (200141)* 8p H01M002-06

ADT JP 2001093489 A JP 2000-11452 20000120

PRAI JP 1999-203091 19990716; JP 1999-11787 19990120

IC ICM H01M002-06

ICS H01M002-02; H01M002-08; H01M002-12; H01M010-40

AB JP2001093489 A UPAB: 20010724

NOVELTY - Flat **battery** is equipped with separator, negative **electrode plate**, positive **electrode** board and **electrolyte** received inside an outer cladding case (7) formed from **laminated resin sheet**. Safety valve is included in the sealing portion of the outer cladding case. Heat welding resin **sheet** at the sealing portion of the case is equipped with a melting point lower than that of **laminated sheet**.

USE - E.g. **lithium polymer secondary battery**.

ADVANTAGE - Enables ejecting gas outside the **battery** quickly during abnormal usage of the **battery**.

DESCRIPTION OF DRAWING(S) - The figure shows the top view of the structure of the flat **battery**.

Outer cladding case 7

Dwg.1/5

FS CPI EPI

FA AB; GI

MC CPI: A99-A; L03-E01D; L03-E03

EPI: X16-B01F; X16-F01; X16-F01A; X16-F03B

L69 ANSWER 34 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2001-294598 [31] WPIX
DNN N2001-210720 DNC C2001-090921

TI Spiral **lithium** cell has **cathode** jar carrying spiral
electrode provided with **lithium cathode**
sheet at periphery press-contacting inner surface of jar with
anode and sealant terminal boar connected through lead tab.

DC L03 X16

PA (FJIC) FUJI ELECTROCHEMICAL CO LTD

CYC 1

PI JP 2001052720 A 20010223 (200131)* 5p H01M006-16

ADT JP 2001052720 A JP 1999-223313 19990806

PRAI JP 1999-223313 19990806

IC ICM H01M006-16

ICS H01M002-26; H01M010-04; H01M010-40

AB JP2001052720 A UPAB: 20010607

NOVELTY - The spiral **lithium** cell has tubular negative plate jar
(2) carrying non-aqueous electrolyte and a spiral **electrode** (7).
Vent in the jar (2) is sealed with a sealant (6) and a gasket (4).
Anode sheet (8) and terminal board of sealant are
connected with a lead tab. The spirally wound **lithium**
cathode sheet (10) exists in outer circumference of
electrode (7) press-contacting with inner surface of jar (2).

DETAILED DESCRIPTION - The spiral **electrode** is formed by
winding the **laminat**e of **lithium** negative
electrode sheet (10), positive **electrode**
sheet (8) and a separator (12).

USE - Power source.

ADVANTAGE - **Lithium** negative **electrode**
sheet and internal circumference of negative plate jar are
electrically connected without using a lead tab. Welding of the negative
electrode lead tab and negative **plate** jar which was
conventionally performed is not required. Productivity and workability are
improved even when the number of **electrode** connections are
reduced.

DESCRIPTION OF DRAWING(S) - The figure shows the cross-sectional
chart of internal structure of spiral **lithium** cell.

Negative plate jar 2

Gasket 4

Sealant 6

Spiral **electrode** 7

Positive **electrode sheet** 8

Lithium negative **electrode sheet** 10

Separator 12

Dwg.2/4

FS CPI EPI

FA AB; GI

MC CPI: L03-E01D

EPI: X16-E03A1; X16-E08A; X16-F03A

L69 ANSWER 35 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2001-183383 [19] WPIX

DNN N2001-130960 DNC C2001-054812

TI **Lithium battery** used as energy source, has electrically conductive coating of fluorinated polymer and mixture of fine carbon and carbon fibers, provided between **cathode** current collector and **cathode** active material.

DC A85 L03 X16

IN BHOLA, R; DASGUPTA, S; JACOBS, J K

PA (BHOL-I) BHOLA R; (DASG-I) DASGUPTA S; (JACO-I) JACOBS J K; (ELEC-N) ELECTROFUEL INC

CYC 2

PI CA 2311876 A1 20010128 (200119)* EN 17p H01M004-66
 US 6261722 B1 20010717 (200142) H01M006-18
 CA 2311876 C 20020507 (200239) EN H01M004-66

ADT CA 2311876 A1 CA 2000-2311876 20000627; US 6261722 B1 US 1999-361977 19990728; CA 2311876 C CA 2000-2311876 20000627

PRAI US 1999-361977 19990728

IC ICM H01M004-66; H01M006-18
 ICS H01M004-58; H01M004-62

AB CA 2311876 A UPAB: 20010405

NOVELTY - A **lithium battery** has an **anode**, **anode** current collector, **lithium** ion conducting electrolyte, **cathode** containing **cathode** active material and **cathode** current collector. An electrically conductive coating is provided between **cathode** current collector and **cathode** active material. The coating comprises a fluorinated polymer with melting point above 70 deg. C, admixed with mixture of fine carbon and carbon fibers.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for rechargeable laminar **lithium battery** which comprises an **anode** capable of reversibly **intercalating lithium** ions, **anode** current collector, **lithium** ion conducting electrolyte and a composite **cathode** having a **cathode** layer which comprises mixture of positive active material capable of reversibly **intercalating lithium** and electrically conductive carbonaceous particles composed of carbon and carbon fibers. A **cathode** current collector is arranged adjacent to **cathode** layer and an electrically conductive coating comprising fluorinated polymer with melting point above 70 deg. C and carbonaceous particles which is a mixture of fine carbon and carbon fibers, is arranged between the **cathode** collector and **cathode** layer.

USE - As energy source.

ADVANTAGE - The lateral conductivity within **electron** conductive **coating** and in the **electrode** layer can beneficially affect the impedance of **electrode** current collector assembly. Conductivity within the **electrochemical cell** or **battery** is improved when carbon fibers are added to electroactive material. The electron transfer between **electrode** and current collector is enhanced as a mixture of carbon fibers and fine carbon is placed along the interface between **electrode** and current collector. The **battery** has high energy density per unit volume.

Dwg.0/1
FS CPI EPI
FA AB
MC CPI: A99-A; L03-E03
EPI: X16-A02A; X16-B01F1; X16-E01E

L69 ANSWER 36 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:859335 CAPLUS
DN 134:88701
ED Entered STN: 08 Dec 2000
TI Preparation and characterization of gold-codeposited LiMn2O4
electrodes
AU Lim, Mi-Ra; Cho, Wan-Il; Kim, Kwang-Bum
CS Department of Chemistry, Chonnam National University, Kwangju, 500-757, S.
Korea
SO Journal of Power Sources (2001), 92(1-2), 168-176
CODEN: JPSODZ; ISSN: 0378-7753
PB Elsevier Science S.A.
DT Journal
LA English
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72
AB Additive-free, gold-codeposited LiMn2O4 **electrodes** are prepared by
embedding LiMn2O4 particles in an **electrodeposited**
coating of metallic gold on platinum-coated quartz
crystals for microgravimetric evaluation with an electrochem.
quartz **crystal** microbalance. The chemical and structural
characteristics of the **electrodes** are studied by Raman
spectroscopy and X-ray diffraction and the electrochem. properties by
cyclic voltammetry. Test cells are assembled with the gold-codeposited
electrode as the working **electrode**, **lithium**
foil as the counter **electrode** and a reference
electrode. A 1.0 M **lithium** perchlorate (LiClO4),
propylene carbonate (PC) solution is used as the electrolyte.
Gold-codeposited LiMn2O4 **electrodes** prepared at **deposition**
times of 4-8 min have a good adhesion of powder to the substrate. The
cyclic voltammograms show little difference in the exchanged charge with
cycling. SEM shows fracture of the LiMn2O4 powders induced by a
dimensional mismatch in the particles after cyclic voltammetric tests at
high scan rates.
ST **battery cathode lithium** manganate
codeposited gold
IT Secondary **batteries**
(**lithium**; preparation and characterization of gold-codeposited
LiMn2O4 **electrodes**)
IT **Battery cathodes**
(preparation and characterization of gold-codeposited LiMn2O4
electrodes)
IT 7440-57-5, Gold, uses 39457-42-6, **Lithium** manganese oxide
RL: DEV (Device component use); USES (Uses)
(preparation and characterization of gold-codeposited LiMn2O4
electrodes)

RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD
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L69 ANSWER 37 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:130888 CAPLUS

DN 137:96173

ED Entered STN: 20 Feb 2002

TI **Coatings for electrochemical applications**

AU Despotopoulou, Marina

CS ATOFINA Chemicals, Inc., King of Prussia, PA, 19406, USA

SO Athens Conference on Coatings: Science and Technology, Proceedings, 27th,
Athens, Greece, July 2-6, 2001 (2001), 57-70 Publisher: Institute of
Materials Science, New Paltz, N. Y.

CODEN: 69CGM9

DT Conference

LA English

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72, 76

AB **Anodes for Li ion batteries** were fabricated

by mixing MCMB graphite in a solution of poly(vinylidene fluoride) PVDF in
N-methylpyrrolidone in a ball mill. A clean Cu foil
was coated with the dispersion and placed in an oven to dry at 150°
for 30 min. The adhesion of PVDF coating on Cu was measured by

- peeling strength tests and optimum graphite concentration was determined as 5 g PVDF for 10 g graphite, to attain conductivity suitable for battery use. The **coated electrodes** were subjected to pressing/**lamination** prior to final assembly into **batteries** to minimize voids. Gel separators were fabricated using microporous PVDF films with di-Bu phthalate as plasticizer with electrolyte of LiPF₆ in ethylene carbonate/propylene carbonate. The gel electrolyte was enclosed in a button-cell with stainless steel **electrodes** and the complex impedance and resistance of the electrolyte were measured. The swelling and aging of the gel electrolyte were also studied.
- ST polyvinylidene fluoride graphite slurry coating **copper electrode**; elec cond adhesion PVDF graphite coating **copper electrode**; gel electrolyte PVDF lithium hexafluorophosphate cond swelling aging; **lithium battery electrode** electrolyte PVDF based component
- IT Adhesion, physical
Aging, materials
 Battery anodes
 Battery cathodes
 Battery electrolytes
Electric conductivity
Electric impedance
Secondary **battery** separators
Swelling, physical
 (fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF₆ gels and conductivity and aging stability of assembled **batteries**)
- IT Fluoropolymers, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
 (fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF₆ gels and conductivity and aging stability of assembled **batteries**)
- IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate
RL: DEV (Device component use); USES (Uses)
 (fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF₆ gels and conductivity and aging stability of assembled **batteries**)
- IT 7440-50-8, **Copper**, uses 7782-42-5, Graphite, uses 24937-79-9, PVDF
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
 (fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF₆ gels and conductivity and aging stability of assembled **batteries**)
- IT 21324-40-3, **Lithium hexafluorophosphate** (LiPF₆)
RL: DEV (Device component use); PRP (Properties); USES (Uses)
 (fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF₆ gels

and conductivity and aging stability of assembled **batteries**)

IT 84-74-2, Dibutyl phthalate
 RL: NUU (Other use, unclassified); USES (Uses)
 (gel plasticizer; fabrication of **electrodes** and gel
 electrolytes based on PVDF-graphite slurry coatings on **copper**
 and PVDF-LiPF6 gels and conductivity and aging stability of assembled
batteries)

IT 872-50-4, N-Methylpyrrolidone, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (slurry solvent; fabrication of **electrodes** and gel
 electrolytes based on PVDF-graphite slurry coatings on **copper**
 and PVDF-LiPF6 gels and conductivity and aging stability of assembled
batteries)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Boyer, R; Macromolecules 1985, V18, P427 CAPLUS
- (2) Choe, H; Electrochimica Acta 1995, V40, P2289 CAPLUS
- (3) Gozdz, A; US 5540741 CAPLUS
- (4) Tazaki, M; J Appl Polym Sci 1977, V65(8), P1517

L69 ANSWER 38 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2000:592961 CAPLUS

DN 133:180356

ED Entered STN: 25 Aug 2000

TI Electrically conductive, freestanding microporous polymer **sheet**

IN Emanuel, James; Young, James; Pekala, Richard W.

PA Amtek Research International Llc, USA

SO PCT Int. Appl., 49 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM H01M004-00

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38, 76

FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000049669	A2	20000824	WO 2000-US4204	20000218
WO 2000049669	A3	20010215		
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1161774	A2	20011212	EP 2000-921334	20000218
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002542574	T2	20021210	JP 2000-600317	20000218

	US 6524742	B1	20030225	US 2000-507174	20000218
	US 2004010909	A1	20040122	US 2003-371993	20030221
PRAI	US 1999-120842P	P	19990219		
	US 2000-507174	A3	20000218		
	WO 2000-US4204	W	20000218		

AB A freestanding, microporous polymer **sheet** is composed of a polymer matrix binding and elec. conductive matrix. The polymer matrix preferably includes UHMWPE, and the elec. conductive matrix preferably is in powder form. The UHMWPE is of a mol. weight that provides sufficient mol. chain entanglement to form a **sheet** with freestanding characteristics. Multiple microporous **sheets** can be wound or stacked in a package filled with an electrolyte to function as **electrodes** in an energy storage device, such as a **battery**. Metallic layers can be applied to the microporous **sheets** to function as current collectors in such devices.

ST **battery** polymer **sheet** elec conductive freestanding microporous

IT Primary **batteries**
(Zn-MnO₂; elec. conductive, freestanding microporous polymer **sheet**)

IT Carbonaceous materials (technological products)
RL: DEV (Device component use); USES (Uses)
(**crystalline** and amorphous; elec. conductive, freestanding microporous polymer **sheet**)

IT Capacitors
(double layer; elec. conductive, freestanding microporous polymer **sheet**)

IT **Battery anodes**
Battery cathodes
Electrodeposition
Secondary **battery** separators
Sputtering
(elec. conductive, freestanding microporous polymer **sheet**)

IT Carbon black, uses
Carbon fibers, uses
Coke
Fluoropolymers, uses
Hydrides
Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(elec. conductive, freestanding microporous polymer **sheet**)

IT **Coating process**
(**electroless**; elec. conductive, freestanding microporous polymer **sheet**)

IT **Battery electrolytes**
(gel; elec. conductive, freestanding microporous polymer **sheet**)

IT Secondary **batteries**
(lead-acid; elec. conductive, freestanding microporous polymer **sheet**)

IT Coating process
(plasma spraying; elec. conductive, freestanding microporous polymer

sheet)

IT Naphthenic oils
RL: TEM (Technical or engineered material use); USES (Uses)
(process oil, Shellflex 3681; elec. conductive, freestanding microporous polymer **sheet**)

IT Coating process
(roller; elec. conductive, freestanding microporous polymer **sheet**)

IT Polyolefins
RL: DEV (Device component use); USES (Uses)
(ultrahigh mol.weight; elec. conductive, freestanding microporous polymer **sheet**)

IT 7631-86-9, Silica, uses
RL: DEV (Device component use); USES (Uses)
(colloidal; elec. conductive, freestanding microporous polymer **sheet**)

IT 1313-13-9, Manganese dioxide, uses 1314-22-3, Zinc dioxide
1314-41-6, Lead oxide pb3o4 1317-36-8, Lead oxide pbo, uses 1332-37-2,
Iron oxide, uses 1335-25-7, Lead oxide 7439-92-1, Lead, uses
7440-02-0, Nickel, uses 7440-22-4,
Silver, uses 7440-48-4, Cobalt, uses
7440-66-6, Zinc, uses 7782-42-5, Graphite, uses
9011-17-0, Kynar 2801 11104-61-3, Cobalt oxide 11113-74-9,
Nickel hydroxide 12196-72-4 20427-58-1, Zinc
hydroxide 21041-95-2, Cadmium hydroxide 24937-79-9, Polyvinylidene
difluoride 25014-41-9, Polyacrylonitrile 25322-68-3 39300-70-4,
Lithium nickel oxide 39457-42-6, Lithium
manganese oxide 52627-24-4, Cobalt lithium oxide
RL: DEV (Device component use); USES (Uses)
(elec. conductive, freestanding microporous polymer **sheet**)

IT 9002-88-4
RL: MOA (Modifier or additive use); TEM (Technical or engineered material
use); USES (Uses)
(elec. conductive, freestanding microporous polymer **sheet**)

IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); USES (Uses)
(microbeads; elec. conductive, freestanding microporous polymer
sheet)

L69 ANSWER 39 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:49068 CAPLUS
DN 132:80967
ED Entered STN: 21 Jan 2000
TI **Sheet type battery** with structure for preventing short
circuit between **cathode** terminal and **anode** terminal
IN Ijiri, Yasuo; Tsujimoto, Junichi
PA Mitsubishi Cable Industries, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M002-34

ICS H01M002-30; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000021387	A2	20000121	JP 1998-201305	19980701
PRAI	JP 1998-201305		19980701		

AB This **battery** comprises a **sheet type electrode** unit sealed with a **laminate** film constituted of a protective layer, a metal **foil**, and an adhesive layer of thermoplastic resin by setting the adhesive layer in the **electrode** unit side. The adhesive layer is extended more than the metal **foil** to be exposed to outside in the periphery of an **electrode** terminal led out of the **electrode** unit or the **laminate** film is folded back in the opposed direction to the direction in which an **electrode** terminal of the **electrode** unit is led out. Since a wide gap is kept between an **electrode** terminal and the metal **foil**, even in the case a conductive and fine foreign substance exists near an **electrode** terminal, short circuiting through the foreign substance and the metal **foil** does not occur.

ST **electrode** thermoplastic film short circuit prevention;
battery electrode terminal thermoplastic insulation coating

IT **Battery electrodes**
 (batteries comprising **electrode** units coated with **laminate** film for preventing short circuit)

IT Polyamides, uses
 Polyesters, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (**laminate** film comprising; **batteries** comprising **electrode** units coated with **laminate** film for preventing short circuit)

IT Secondary **batteries**
 (**lithium**; **batteries** comprising **electrode** units coated with **laminate** film for preventing short circuit)

IT Plastics, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (thermoplastics, **laminate** film comprising; **batteries** comprising **electrode** units coated with **laminate** film for preventing short circuit)

IT 7429-90-5, Aluminum, uses 7440-50-8, Copper, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (**foil**, **laminate** film comprising; **batteries** comprising **electrode** units coated with **laminate** film for preventing short circuit)

IT 9002-88-4, Polyethylene 25038-59-9, Poly(ethylene terephthalate), uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (**laminate** film comprising; **batteries** comprising **electrode** units coated with **laminate** film)

for preventing short circuit)

L69 ANSWER 40 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2000:774123 CAPLUS

DN 133:352634

ED Entered STN: 05 Nov 2000

TI **Electrode** materials having increased surface conductivity

IN Ravet, Nathalie; Besner, Simon; Simoneau, Martin; Vallee, Alain; Armand, Michel; Magnan, Jean-francois

PA Hydro-Quebec, Can.

SO Eur. Pat. Appl., 22 pp.

CODEN: EPXXDW

DT Patent

LA French

IC ICM H01M004-58

ICS H01M004-48; H01M004-62

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 57, 72, 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1049182	A2	20001102	EP 2000-401207	20000502
	EP 1049182	A3	20040211		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	CA 2270771	AA	20001030	CA 1999-2270771	19990430
	CA 2307119	AA	20001030	CA 2000-2307119	20000428
	JP 2001015111	A2	20010119	JP 2000-132779	20000501
	US 2002195591	A1	20021226	US 2002-175794	20020621
PRAI	CA 1999-2270771	A	19990430		
	US 2000-560572	B1	20000428		

AB **Intercalated electrode** materials comprising complex oxides, especially Li oxides, are prepared, suitable for redox reaction by exchange of alkali metal ions (especially Li) and electrons with an electrolyte. The complex oxide **electrodes** can be used in **batteries**, supercapacitors or electrochromic light moderators. The complex oxides have the general formula $AaMmZzOoNnFf$, where A is alkali metal (e.g., Li), M is ≥ 1 transition metal (e.g., Fe, Mn, V, Ti, Mo, Nb, Zn, W), Z is ≥ 1 nonmetal (e.g., P, S, Si, Se, As, Ge, B, Sn), and a,m,z,o,n,f are chosen for elec. neutrality. A conductive carbon coating is formed or deposited on the surface of the **electrode** material, e.g., by pyrolysis of an organic material, hydrocarbons or polymers, for increased surface conductivity

ST **electrode** material carbon coated increased surface cond; **battery electrode** carbon coated increased surface cond; supercapacitor **electrode** carbon coated increased surface cond; **electrochromic** material carbon coated increased surface cond

IT Metallic fibers

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(aluminum; **electrode** materials having increased surface conductivity)

IT Windows
Windows
(electrochromic; **electrode** materials having increased surface conductivity)

IT **Battery cathodes**
Capacitor **electrodes**
Electrochromic materials
Electrodes
Primary **batteries**
Secondary **batteries**
Thermal decomposition
(**electrode** materials having increased surface conductivity)

IT Oxides (inorganic), uses
Oxynitrides
Phosphates, uses
Silicates, uses
Sulfates, uses
RL: DEV (Device component use); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**electrode** materials having increased surface conductivity)

IT Carbon black, uses
EPDM rubber
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(**electrode** materials having increased surface conductivity)

IT Hydrocarbons, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(**electrode** materials having increased surface conductivity)

IT Organic compounds, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(**electrode** materials having increased surface conductivity)

IT Polymers, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(**electrode** materials having increased surface conductivity)

IT Polyolefins
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(**electrode** materials having increased surface conductivity)

IT Polysaccharides, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(**electrode** materials having increased surface conductivity)

IT Polyoxyalkylenes, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(electrolytes; **electrode** materials having increased surface conductivity)

IT Primary batteries
Secondary batteries
(lithium; electrode materials having increased surface conductivity)

IT Fluorides, uses
RL: DEV (Device component use); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(oxyfluorides; electrode materials having increased surface conductivity)

IT Electrolytic capacitors
(supercapacitors; electrode materials having increased surface conductivity)

IT Electrochromic devices
Electrochromic devices
(windows; electrode materials having increased surface conductivity)

IT 7440-44-0P, Carbon, uses 15365-14-7P, Iron lithium phosphate (FeLiPO₄) 30734-08-8P, Lithium manganese silicate Li₂MnSiO₄ 39302-37-9P, Lithium titanium oxide 180984-63-8P, Lithium magnesium titanium oxide 252943-50-3P, Lithium vanadium phosphate silicate Li₃.5V₂(PO₄)₂.5(SiO₄)_{0.5} 304905-30-4P 304905-31-5P, Iron lithium fluoride (FeLi_{0.2}F₃) 304905-32-6P, Lithium manganese nitride oxide (Li₃MnNO) 304905-33-7P 304905-34-8P 304905-35-9P, Lithium magnesium titanium oxide (Li₃.5Mg_{0.5}Ti₄O₁₂) 304905-36-0P, Iron lithium phosphorus silicon oxide 304905-37-1P 304905-38-2P, Iron lithium phosphorus fluoride oxide 304905-39-3P 304905-40-6P 304905-41-7P 304905-42-8P
RL: DEV (Device component use); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(electrode materials having increased surface conductivity)

IT 1314-35-8, Tungsten oxide WO₃, uses 7782-42-5, Graphite, uses 50926-11-9, Indium tin oxide 65324-39-2, Celgard 2400
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(electrode materials having increased surface conductivity)

IT 1333-74-0, Hydrogen, uses 7440-37-1, Argon, uses 7440-59-7, Helium, uses 7727-37-9, Nitrogen, uses 7782-44-7, Oxygen, uses
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(electrode materials having increased surface conductivity)

IT 78-10-4 109-72-8, Butyl lithium, uses 546-68-9 553-91-3, Lithium oxalate 554-13-2, Lithium carbonate 1310-65-2, Lithium hydroxide 1344-43-0, Manganese oxide MnO, uses 5931-89-5, Cobalt acetate 5965-38-8, Cobalt oxalate dihydrate 6108-17-4, Lithium acetate dihydrate 6156-78-1, Manganese acetate tetrahydrate 6556-16-7, Manganese oxalate dihydrate 7722-76-1, Ammonium dihydrogen phosphate 7783-50-8, Iron fluoride FeF₃ 7803-55-6, Ammonium vanadate 9003-01-4, Polyacrylic acid 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer 10028-22-5, Ferric sulfate 10102-24-6, Lithium

silicate Li_2SiO_3 10377-52-3, **Lithium** phosphate Li_3PO_4 13463-10-0, Ferric phosphate dihydrate 14567-67-0, Vivianite 16674-78-5, Magnesium acetate tetrahydrate 25656-42-2, **Lithium** polyacrylate 26134-62-3, **Lithium** nitride 145673-07-0
 RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)

(**electrode** materials having increased surface conductivity)

IT 304905-43-9 305324-61-2

RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)

(**electrode** materials having increased surface conductivity)

IT 57-50-1, reactions 77-47-4, Hexachlorocyclopentadiene 98-00-0D, Furfuryl alcohol, derivs., polymers 100-42-5D, Styrene, derivs., polymers 107-13-1D, Acrylonitrile, derivs., polymers 108-05-4D, Vinyl acetate, derivs., polymers 108-95-2D, Phenol, derivs., polymers, reactions 115-07-1, 1-Propene, reactions 120-12-7, Anthracene, reactions 128-69-8D, 3,4,9,10-Perylenetetracarboxylic acid dianhydride, polymers with Jeffamine 600 198-55-0D, Perylene, derivs., polymers 630-08-0, Carbon monoxide, reactions 996-70-3, Tetrakis(dimethylamino)ethylene 1321-74-0D, Divinylbenzene, derivs., polymers 6674-22-2, DBU 9002-88-4 9002-89-5 9003-07-0, Polypropylene 9003-17-2D, Polybutadiene, derivs. 9004-34-6D, Cellulose, derivs., reactions 9004-35-7, Cellulose acetate 9005-25-8D, Starch, derivs., reactions 15133-82-1, Tetrakis(triphenylphosphine) **nickel** 25014-41-9, Polyacrylonitrile 51736-72-2, Polyvinylidene bromide 157889-12-8, Jeffamine ED 600- perylenetetracarboxylic acid dianhydride copolymer

RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)

(**electrode** materials having increased surface conductivity)

IT 75-05-8, Acetonitrile, uses 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 110-71-4 616-38-6, Dimethyl carbonate 646-06-0, Dioxolane 2832-49-7, Tetraethylsulfamide 21324-40-3, **Lithium** hexafluorophosphate LiPF_6 25322-68-3 66950-70-7 90076-65-6, **Lithium bis**(trifluoromethanesulfonyl)imide

RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)

(electrolytes; **electrode** materials having increased surface conductivity)

IT 7429-90-5, Aluminum, uses

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(**foils**, grills; **electrode** materials having increased surface conductivity)

IT 7439-93-2, **Lithium**, uses

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(**foils**; **electrode** materials having increased surface conductivity)

IT 7440-50-8, **Copper**, uses

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(grills; **electrode** materials having increased surface conductivity)
IT 7440-02-0, **Nickel**, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(substrates; **electrode** materials having increased surface conductivity)

L69 ANSWER 41 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2000-635743 [61] WPIX

DNN N2000-471754

TI Terminal for **lithium** secondary **battery** of portable telephone, has bracing material connected with management material via hinge, so that it is movable along **lamination** direction of **plates** of **electrode laminate**.

DC X16

PA (KANT) KANSAI DENRYOKU KK; (SUME) SUMITOMO ELECTRIC IND CO

CYC 1

PI JP 2000268806 A 20000929 (200061)* 6p H01M002-30

ADT JP 2000268806 A JP 1999-66915 19990312

PRAI JP 1999-66915 19990312

IC ICM H01M002-30

AB JP2000268806 A UPAB: 20001128

NOVELTY - Management material (11) is positioned along **lamination** direction of positive and negative **plates** (EL1) of an **electrode laminate** (EL). Bracing material (12) which connects preset number of **sheets** collectively, is arranged at fixed intervals of the material (11). The material (12) is connected to the material (11), via a hinge or flexible connector, so that it is movable along the **lamination** direction.

USE - For **lithium** secondary **battery** of portable telephone, notebook computer, electronic machine, hybrid motor vehicle.

ADVANTAGE - Prevents damage to the collector **foil** by connecting bracing material to management material, in a movable manner, even if charging and discharging are performed repetitively.

DESCRIPTION OF DRAWING(S) - The figure shows the top view and front elevation of the terminal.

Management material 11

Bracing material 12

Electrode laminate EL

Plate EL1

Dwg.1/3

FS EPI

FA AB; GI

MC EPI: X16-B01F1; X16-F03A

L69 ANSWER 42 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2000-621531 [60] WPIX

DNN N2000-460584 DNC C2000-186687

TI **Lithium** polymer secondary **battery** has **laminated sheet** with thermobonding resin film layer which **laminates electrode** group welded along outer side and adjoined with metallic **foil** weld.

DC A85 L03 X16
PA (MATU) MATSUSHITA DENKI SANGYO KK
CYC 1
PI JP 2000223090 A 20000811 (200060)* 5p H01M002-08
ADT JP 2000223090 A JP 1999-24598 19990202
PRAI JP 1999-24598 19990202

IC ICM H01M002-08

ICS H01M002-02; H01M010-40

AB JP2000223090 A UPAB: 20001123

NOVELTY - The **battery** has an outer cladding **sheet** (12) having **lamination sheet** (15) which has aluminum **foil** (6) and thermobonding resin film (5). **Foil** (6) **laminates** film (5) that **laminates electrode** group (4) having alternate positive and negative **electrode plates** (1,2) with separator in between. The sealing of **electrode** group is done by adjoining resin layer welding (10) with **foil** layer welding (11) in outer side.

USE - For **lithium** polymer secondary **battery**.

ADVANTAGE - Since welding of resin layer is performed in outer side reinforcement of outer side of seal structure is attained and dissipation of liquid or gaseous electrolyte from seal structure is completely prevented therefore reliability of **battery** is improved.

DESCRIPTION OF DRAWING(S) - The figure shows the seal structure of **battery**.

Positive and negative **electrode plate** 1,2

Electrode group 4

Thermobonding resin film 5

Aluminum **foil** 6

Resin layer welding 10

Foil layer welding 11

Outer cladding **sheet** 12

Lamination sheet 15

Dwg.1/5

FS CPI EPI

FA AB; GI

MC CPI: A12-E06; L03-E01D

EPI: X16-B01F1; X16-F01A

L69 ANSWER 43 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2000-529673 [48] WPIX

DNN N2000-392017

TI Flat **battery** has **laminated sheets** sealed by heat welding and inserted into concave portion in outer cladding case.

DC X16

PA (MATU) MATSUSHITA DENKI SANGYO KK

CYC 1

PI JP 2000208110 A 20000728 (200048)* 6p H01M002-02

ADT JP 2000208110 A JP 1999-6626 19990113

PRAI JP 1999-6626 19990113

IC ICM H01M002-02

ICS H01M002-08

ICA H01M010-40

AB JP2000208110 A UPAB: 20001001

NOVELTY - A flat **laminated electrode** (4), positive **electrode board** (1), separator (3) and negative **electrode plate** (2) are integrated to a shape of a film comprising a pair of **laminated sheets**. The circumference of the **laminated sheets** are sealed by heat welding and **sheet** is inserted into an accommodation concave portion (11) in outer cladding case (7).

USE - Flat **battery** e.g. **lithium** polymer secondary **battery**.

ADVANTAGE - Though the dimension of **battery** is minimized, the efficiency of the **battery** is improved. The flat **laminated electrode** can be inserted into concave portion in outer cladding case without producing useless space in the concave portion.

DESCRIPTION OF DRAWING(S) - The figure shows the enlarged vertical longitudinal sectional view of **battery**.

Positive **electrode board** 1

Negative **electrode plate** 2

Separator 3

Electrode 4

Outer cladding case 7

Concave portion 11

Dwg.4/6

FS EPI

FA AB; GI

MC EPI: X16-B01F1; X16-F01A; X16-F01F

L69 ANSWER 44 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2000-202443 [18] WPIX

DNN N2000-150924 DNC C2000-062381

TI **Lithium** ion secondary **battery** for use in motor vehicles and electrically driven wheel chairs comprises cylindrical **electrode laminate** provided on metal container.

DC A85 G02 L03 X16

PA (KOSE-N) KOSERU KK; (NIPP-N) NIPPEI TOYAMA KK; (NISC) NISSAN CHEM IND LTD; (TODO-N) TODO KOGYO KK; (TOYA-N) TOYAMA KEN

CYC 1

PI JP 2000040529 A 20000208 (200018)* 5p H01M010-40

ADT JP 2000040529 A JP 1998-207257 19980723

PRAI JP 1998-207257 19980723

IC ICM H01M010-40

ICS C09D005-24; C09D163-00; H01M002-22; H01M002-26

AB JP2000040529 A UPAB: 20000419

NOVELTY - **Lithium** ion secondary **battery** comprises cylindrical **electrode laminate** (14), (formed by **laminating** positive **electrode**, negative **electrode** and separator) provided on a metal container (12). A collector is configured on the edge portion of the **electrode laminate**. A conductive paint (20) containing nickel powder, electrically connects collector and metal container.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for the

manufacture of **lithium ion secondary battery**. The positive **electrode** is formed by applying positive **electrode** material containing **lithium** compound to metal **plate** (22). Similarly, the negative **electrode** is formed by applying negative **electrode** material to another metal **sheet** surface. The positive **electrode**, negative **electrode** and the separator are sequentially laminated and wound cylindrically to form **electrode laminate**. The conductive resin containing **nickel** powder, applied between collector and metal container is hardened at 50-100 deg. C.

USE - For use in motor vehicles, power storage **batteries** and electrically driven wheel chairs.

ADVANTAGE - The **electrode laminate** is reliably and easily connected to an external **electrode**. The **battery** is durable and safe even during conduction of heavy currents. The **battery** can be manufactured economically.

DESCRIPTION OF DRAWING - The figure shows cross sectional view of **lithium ion secondary battery**. (12) Metal container; ; (14) **Electrode laminate**; ; (16) Positive **electrode** collector; ; (18) Negative **electrode** collector; ; (20) Conductive paint; ; (22) Metal plate.

Dwg.1/2

FS CPI EPI

FA AB; GI

MC CPI: A08-M09A; A09-A03; A12-E06; A12-T04; G02-A05B; L03-E03
EPI: X16-B01F; X16-F03

L69 ANSWER 45 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2000-389539 [34] WPIX

DNN N2000-291705 DNC C2000-118489

TI Laminar **battery** with coiled **electrodes** which has improved output as localized short circuits are prevented by bulge on part of **electrode**.

DC A85 L03 X16

IN AMANO, T; HOSOKAWA, N; KAMI, K; SHINKAI, R; UESHIMA, H; YAMADA, M

PA (NPDE) DENSO CORP; (NPDE) NIPPONDENSO CO LTD

CYC 3

PI FR 2786028 A1 20000519 (200034)* 92p H01M010-04

JP 2001093583 A 20010406 (200126) 30p H01M010-40

US 6335114 B1 20020101 (200207) H01M010-00

ADT FR 2786028 A1 FR 1999-14373 19991116; JP 2001093583 A JP 1999-284882
19991005; US 6335114 B1 US 1999-440512 19991115

PRAI JP 1999-284882 19991005; JP 1998-325482 19981116; JP 1999-208264
19990722

IC ICM H01M010-00; H01M010-04; H01M010-40

ICS H01M002-16; H01M002-26; H01M002-34; H01M002-40; H01M004-62;
H01M004-70

AB FR 2786028 A UPAB: 20000718

NOVELTY - Laminar **battery** comprises laminated **electrode** made up of stratified **sheets** of positive and negative plates with a separator between them. One of the plates includes a bulge which juts out beyond the side of the other plate and which

comprises a layer preventing localized short circuits.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for method for making the **electrode** by:

- a) formation of **electrode plate** in which one **plate** is formed comprising body of **electrode** and bulge;
 - b) formation of layer of polymer mixture in which mixture is dissolved in suitable solvent so that it can adhere to surface of **electrode** comprising bulge;
 - c) deposition of polymer; and
 - d) drying to obtain layer which prevents short circuits.
- USE - As **laminated battery** (claimed).

ADVANTAGE - **Battery** has improved output compared with anterior work; and localized short circuits are prevented by the use of the bulge (claimed).

DESCRIPTION OF DRAWING(S) - The drawing shows the **battery** including the bulge.

- positive **electrode** boundary 13
- negative **electrode** boundary 14
- coiled **electrode** 2
- positive plate 21
- negative plate 22

separator 23

bulge 213

Dwg.1/26

FS CPI EPI

FA AB; GI

MC CPI: A12-E06A; A12-E06B; L03-E01B9
EPI: X16-E08A; X16-F02

L69 ANSWER 46 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2000-388089 [34] WPIX

CR 2000-278773 [24]

DNN N2000-290512 DNC C2000-117982

TI Solid electrolyte composition for **battery**, contains gelled mixture of matrix polymer, reactive monomer, organic solvent and alkali metal electrolyte salt.

DC A11 A25 A85 L03 X16

IN ITOH, T; OGINO, T; TAKEI, F; YOSHIDA, H

PA (FUIT) FUJITSU LTD

CYC 2

PI CA 2280999 A1 20000229 (200034)* EN 52p H01M010-26

JP 2000268866 A 20000929 (200055) 15p H01M010-40

ADT CA 2280999 A1 CA 1999-2280999 19990830; JP 2000268866 A JP 1999-73730 19990318

PRAI JP 1999-73730 19990318; JP 1998-245071 19980831

IC ICM H01M010-26; H01M010-40

ICS C08K003-32; H01M010-28

AB CA 2280999 A UPAB: 20001102

NOVELTY - A solid electrolyte (I) comprising a gelled mixture of:

- (i) a host polymer consisting of a polysaccharide derivative;
- (ii) a reactive monomer, consisting of a mixture of multifunctional monomers;

- (iii) an organic solvent; and
- (iv) an alkali metal salt electrolyte.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) A solid electrolyte **battery** which comprises: positive (1) and negative (3) **electrode** active substances in contact with the solid electrolyte (2) composition (I).

(2) A **battery** production process which involves:

(i) preparing a **laminated** of active substance-bound positive and negative **electrodes**, collectors and an electrolyte;

(ii) sealing the **laminated** to obtain a **battery**; and optionally

(iii) treating one or both organic-binder bound **electrodes** with a liquid capable of dissolving the binder.

USE - For solid electrolyte **battery** (claimed) e.g. secondary **battery** used as power source for portable devices such as cellular phone, laptop PCs, note book computers.

ADVANTAGE - Electrolyte has high mechanical strength and ionic conductivity. **Battery** has high discharge rate.

DESCRIPTION OF DRAWING(S) - The figure shows a schematic cross section of a solid electrolyte **battery**.

Positive and negative active substances 1, 3

Solid electrolyte 2

Dwg.1/5

FS CPI EPI

FA AB; GI

MC CPI: A03-A00A; A10-E07B; A12-E06A; L03-E01C
EPI: X16-B01; X16-J01A

L69 ANSWER 47 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1999:708038 CAPLUS

DN 131:312444

ED Entered STN: 05 Nov 1999

TI **Cathode** plates for secondary **lithium ion batteries** and **batteries** using them

IN Nakai, Kenji; Tomoto, Koji; Iida, Toyoshi; Makino, Satoshi; Kiyokawa, Tadashi; Kiyokawa, Hajime; Takashima, Masayuki; Yonezawa, Susumu

PA Shin-Kobe Electric Machinery Co., Ltd., Japan; Tanaka Kagaku Kenkyusho K. K.; Kyokawa Mekki Kogyo K. K.

SO Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01M004-02

ICS H01M004-04; H01M004-58; H01M004-62; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11307083	A2	19991105	JP 1998-109300	19980420
PRAI	JP 1998-109300		19980420		

AB The title **cathode** plates comprise active mass powder represented

as $\text{Li}_x\text{M}_y\text{O}_2$ ($\text{M} = \text{Co}, \text{Ni}, \text{Mn}, \text{V}, \text{Fe},$
or Ti ; $x = 0.2-2.5$; $y = 0.8-1.25$) coated on current
collectors, where **electroconductive** substances are fixed as thin
films on surfaces of the active mass powder. Also claimed are
cathode plates containing active mass layers comprising the above
active mass power, nonaq. electrolyte solns. containing LiPF_6 dissolved in
ethylene carbonate and di-Et carbonate, and poly(vinylidene fluoride)
formed on Al foil current collectors, where the active mass
powder is coated with 0.1-20 volume% conductive substances. Claimed
batteries are equipped with the above **cathode** plates and
Li-intercalating C anodes. The
cathode plates provide high discharge capacity without decreasing
energy d.

- ST **lithium cobalt oxide cathode** conductive
coating; **battery lithium mixed oxide cathode**
- IT Fluoropolymers, uses
RL: DEV (Device component use); USES (Uses)
(binders; **lithium mixed oxide** coated with conductive
substances for **cathodes in batteries**)
- IT **Battery cathodes**
Sputtering
(**lithium mixed oxide** coated with conductive substances for
cathodes in batteries)
- IT Secondary **batteries**
(**lithium**; **lithium mixed oxide** coated with
conductive substances for **cathodes in batteries**)
- IT Vapor deposition process
(vacuum; **lithium mixed oxide** coated with conductive
substances for **cathodes in batteries**)
- IT 24937-79-9
RL: DEV (Device component use); USES (Uses)
(binders; **lithium mixed oxide** coated with conductive
substances for **cathodes in batteries**)
- IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel,
uses 7440-44-0, Carbon, uses 7440-57-5, Gold, uses
RL: DEV (Device component use); USES (Uses)
(coatings; **lithium mixed oxide** coated with conductive
substances for **cathodes in batteries**)
- IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate
RL: DEV (Device component use); USES (Uses)
(**electrolyte** solvents; **lithium mixed oxide**
coated with conductive substances for **cathodes in**
batteries)
- IT 21324-40-3, **Lithium hexafluorophosphate**
RL: DEV (Device component use); USES (Uses)
(**electrolytes**; **lithium mixed oxide** coated
with conductive substances for **cathodes in batteries**
)
- IT 11113-67-0, **Iron lithium oxide** 11126-15-1,
Lithium vanadium oxide 39300-70-4, **Lithium**
nickel oxide 39302-37-9, **Lithium titanium**
oxide 39457-42-6, **Lithium manganese oxide** 160152-00-1,

Cobalt lithium oxide (CoLi1.0102)

RL: DEV (Device component use); USES (Uses)

(**lithium** mixed oxide coated with conductive substances for
cathodes in **batteries**)

L69 ANSWER 48 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1999-601372 [51] WPIX
DNN N1999-443348 DNC C1999-175050
TI **Cathode** material for **lithium** secondary cells.
DC A26 A85 L03 X16
IN DAVIES, B L; MOKUDAI, H; MURATA, M; OGURA, S
PA (AXIV-N) AXIVA GMBH; (AVET) AVENTIS RES & TECHNOLOGIES GMBH & CO KG;
(CELA) CELANESE VENTURES GMBH; (DAVI-I) DAVIES B L; (MOKU-I) MOKUDAI H;
(MURA-I) MURATA M; (OGUR-I) OGURA S
CYC 23
PI WO 9950922 A1 19991007 (199951)* EN 31p H01M004-36
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: CA JP KR US
JP 11329413 A 19991130 (200007) 16p H01M004-02
EP 1068647 A1 20010117 (200105) EN H01M004-36
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
KR 2001052228 A 20010625 (200173) H01M004-02
US 2002061441 A1 20020523 (200239) H01M004-58
JP 2002519826 W 20020702 (200246) 37p H01M004-36
US 6703163 B2 20040309 (200418) H01M004-58
ADT WO 9950922 A1 WO 1999-EP1945 19990323; JP 11329413 A JP 1998-134350
19980428; EP 1068647 A1 EP 1999-911810 19990323, WO 1999-EP1945 19990323;
KR 2001052228 A KR 2000-710851 20000929; US 2002061441 A1 US 2001-846066
20010501; JP 2002519826 W WO 1999-EP1945 19990323, JP 2000-556592
19990323; US 6703163 B2 Cont of US 1998-52365 19980331, Cont of WO
1999-EP1945 19990323, Cont of US 2000-647138 20000927, US 2001-846066
20010501
FDT EP 1068647 A1 Based on WO 9950922; JP 2002519826 W Based on WO 9950922
PRAI JP 1998-134350 19980428; US 1998-52365 19980331
IC ICM H01M004-02; H01M004-36; H01M004-58
ICS C01B031-02; H01M004-60; H01M004-62; H01M010-40
AB WO 9950922 A UPAB: 19991207
NOVELTY - An **electrode** comprises (a) an electrically conductive
matrix containing a disulfide group, in which an S-S bond of the disulfide
group is cleaved by electrochemical reduction and reformed by
electrochemical oxidation; and (b) carbon nanotubes, which are dispersed
in the matrix.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:-
(1) a **battery** precursor comprising a **cathode** of
the above **electrode** material, which is coated on to a
cathode current collector; and
(2) a **lithium battery** comprising a
cathode of the above **electrode** material, an
anode having an active material for releasing **lithium**
ions and an **electrode** placed between the **cathode** and
anode.
USE - As the **cathode** material in a secondary

lithium battery.

ADVANTAGE - Compared to other carbon materials, a smaller amount of carbon nanotubes provides the necessary electrical conductance and mechanical strength, and both of these properties are improved. The **electrode** precursor has improved adhesion to the current collector.

Dwg.0/4

FS CPI EPI

FA AB

MC CPI: A12-E06A; L03-E01B5; L03-E03

EPI: X16-B01F1; X16-E01C; X16-E02

L69 ANSWER 49 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 1999-534538 [45] WPIX

DNN N1999-397243 DNC C1999-156710

TI Outer cladding case of **lithium** polymer secondary **battery**
- comprises **lamination sheet** and adhesive.

DC A85 L03 X16

PA (MATU) MATSUSHITA DENKI SANGYO KK

CYC 1

PI JP 11233133 A 19990827 (199945)* 6p H01M010-04

ADT JP 11233133 A JP 1998-35958 19980218

PRAI JP 1998-35958 19980218

IC ICM H01M010-04

ICS H01M002-02; H01M002-22; H01M006-02; H01M010-40

AB JP 11233133 A UPAB: 19991103

NOVELTY - Positive and negative **electrode** leads (8,9) are drawn out from **lamination electrode** (4) which **laminates** positive and negative **electrode plates** through a separator. A pair of **lamination sheet** is wound on the **lamination electrode** to seal it and form the outer cladding case. Adhesive thermo-bonding property resin (12-14) is coated on the sealing site, where the leads are drawn out.

USE - For **lithium** polymer secondary **battery**.

ADVANTAGE - Sealing with adhesive thermo-bonding property resin prevents electrolyte leak, thus reliable outer cladding case is offered, then remains stable for long period.

DESCRIPTION OF DRAWING(S) - The figure shows surface block diagram of **battery** structure. (4) **Lamination electrode**;
(8,9) Positive and negative **electrode** leads; (12-14) Thermo-bonding property resin.

Dwg.1/5

FS CPI EPI

FA AB; GI

MC CPI: A12-E06C; L03-E01D; L03-E03

EPI: X16-A; X16-B01; X16-B01F; X16-F01; X16-F03

L69 ANSWER 50 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 1999-484461 [41] WPIX

DNN N1999-361490 DNC C1999-142452

TI **Lithium foil lamination** method for
manufacture of non-aqueous electrolyte secondary **batteries** -

involves rolling and adhering heated lithium foil on surface of **electrode plate** of negative **electrode**.

DC L03 X16
PA (NIST) JAPAN STORAGE BATTERY CO LTD
CYC 1
PI JP 11204144 A 19990730 (199941)* 8p H01M010-40
ADT JP 11204144 A JP 1998-5153 19980113
PRAI JP 1998-5153 19980113
IC ICM H01M010-40
ICS H01M004-04; H01M010-38
AB JP 11204144 A UPAB: 19991103

NOVELTY - Heated lithium foil (50) is rolled and adhered on the surface of an **electrode plate** (20) of a negative **electrode**. Then, the **electrode plates** of the positive and negative **electrodes** are laminated via a separator.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for non-aqueous electrolyte secondary **battery** manufacturing apparatus.

USE - For manufacture of non-aqueous electrolyte secondary **batteries**.

ADVANTAGE - Enables to adhere lithium foil on surface of **electrode plate** uniformly and effectively at high speed and thereby improving productivity. Prevents formation of lithium nitride by performing heat rolling of lithium in atmosphere without nitrogen.

DESCRIPTION OF DRAWING - The figure shows fragmentary sectional view of lithium foil lamination apparatus. (20)
Electrode plate; (50) **Lithium foil**.

Dwg.4/11

FS CPI EPI
FA AB; GI
MC CPI: L03-E01B5; L03-J
EPI: X16-B01F1; X16-B01X; X16-E01G

L69 ANSWER 51 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1998:351659 CAPLUS
DN 129:30156
ED Entered STN: 10 Jun 1998
TI Secondary nonaqueous electrolyte **batteries**
IN Ikuyama, Seiichi
PA Sony Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M004-02
ICS H01M004-62; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI  JP 10149810      A2   19980602      JP 1996-326126      19961120
PRAI JP 1996-326126      19961120
AB  The batteries use cathodes and anodes having
    an active mass layer coated on a collector, where the cathode
    and/or the anode has an adhesion enhancing coating layer between
    the active mass layer. The adhesion enhancing coating is preferably
    polyurethane or epoxy resin and may contain a polyisocyanate crosslinking
    agent or a coupling agent, the cathode has a Li
    transition metal oxide on an Al collector foil, and the
    anode has a Li intercalating carbonaceous
    material on a Cu collector foil.
ST  lithium battery electrode adhesion enhancing
    coating; polyurethane lithium battery
    electrode adhesion enhancing; epoxy resin lithium
    battery electrode
IT  Adhesives
    Battery electrodes
        (compns. of adhesion enhancing coatings for electrode
        active mass layers on collectors in secondary lithium
        batteries)
IT  Polyurethanes, uses
    RL: MOA (Modifier or additive use); USES (Uses)
        (compns. of adhesion enhancing coatings for electrode
        active mass layers on collectors in secondary lithium
        batteries)
IT  7440-50-8, Copper, uses
    RL: DEV (Device component use); PEP (Physical, engineering or chemical
    process); PROC (Process); USES (Uses)
        (compns. of adhesion enhancing coatings for carbon anodes
        with copper collectors in secondary lithium
        batteries)
IT  2897-60-1, Kbe 402   3068-76-6, KBM 573   7440-44-0, Carbon, uses
    39278-79-0, Coronate L   65460-53-9, Kr46b   84420-02-0, Epiclon H
    201-60BT   97621-95-9, Epiclon H 157   176303-98-3, Epiclon b 3150
    RL: MOA (Modifier or additive use); USES (Uses)
        (compns. of adhesion enhancing coatings for electrode
        active mass layers on collectors in secondary lithium
        batteries)
IT  7429-90-5, Aluminum, uses 12190-79-3, Cobalt
    lithium oxide (CoLiO2)
    RL: DEV (Device component use); PEP (Physical, engineering or chemical
    process); PROC (Process); USES (Uses)
        (compns. of adhesion enhancing coatings for lithium cobaltate
        cathodes with aluminum collectors in secondary lithium
        batteries)

L69  ANSWER 52 OF 78  CAPLUS  COPYRIGHT 2004 ACS on STN
AN   1998:126852  CAPLUS
DN   128:182603
ED   Entered STN:  02 Mar 1998
TI   Spiral-type sheet electrodes suitable for

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lithium secondary battery anodes

IN Yamaguchi, Itsuwa; Ito, Shinsuke
 PA Fuji Electrochemical Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01M004-02
 ICS H01M004-58; H01M004-62
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10055798	A2	19980224	JP 1996-209882	19960808
PRAI	JP 1996-209882		19960808		

AB The title **electrodes** are prepared by (1) **coating** slurries containing active mass and CM-cellulose as a binder on current collector **sheets**, (2) coiling the **sheets** with separators, wherein polyethylene oxide is added into the slurries as a softener. The **electrodes** containing carbonaceous materials are used for **Li** secondary **battery anodes**. By using aqueous solvents in preparing the slurries, the slurries are unflammable and safe, and by adding polyethylene oxide, the **laminates** can be coiled easily.

ST **lithium spiral battery anode** fabrication
 binder; carbonaceous **anode battery spiral** coiling; CM
 cellulose binder **lithium battery anode**;
 polyethylene oxide softener **lithium battery anode**

IT Binders
 (CM-cellulose; spiral-type **sheet electrodes**
 suitable for **Li** secondary **battery anodes**)

IT Softening agents
 (polyethylene oxide; spiral-type **sheet electrodes**
 suitable for **Li** secondary **battery anodes**)

IT Polyoxyalkylenes, uses
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (softener; in spiral-type **sheet electrodes** suitable
 for **Li** secondary **battery anodes**)

IT **Battery anodes**
 (spiral-type **sheet electrodes** suitable for
Li secondary **battery anodes**)

IT 9004-32-4, Carboxymethylcellulose sodium salt
 RL: DEV (Device component use); TEM (Technical or engineered material
 use); USES (Uses)
 (binder; in spiral-type **sheet electrodes** suitable
 for **Li** secondary **battery anodes**)

IT 25322-68-3, Polyethylene oxide
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)

(softener; in spiral-type **sheet electrodes** suitable
for **Li secondary battery anodes**)

L69 ANSWER 53 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 1999-020193 [02] WPIX

DNN N1999-016494 DNC C1999-006232

TI Non-aqueous electrolyte secondary **battery** - has **lithium foil laminated sheet** which is formed over **electrode** mixture on collector of **cathode** plate to form **cathode laminated board**.

DC L03 X16

PA (NIST) JAPAN STORAGE BATTERY CO LTD

CYC 1

PI JP 10289708 A 19981027 (199902)* 5p H01M004-02

ADT JP 10289708 A JP 1997-94026 19970411

PRAI JP 1997-94026 19970411

IC ICM H01M004-02

ICS H01M004-04; H01M010-40

AB JP 10289708 A UPAB: 19990113

The **battery** has an **anode** pole board and a **cathode laminated board** sandwiching a separator. The **cathode laminated board** has a **lithium foil lamination sheet** (50) which is fixed to the surface of an **electrode** mixture (23), over a collector (22) of the **cathode** plate (20). The **lithium foil lamination sheet** comprises of **lithium foil** (52) formed on a base film (51).

ADVANTAGE - Diffuses **electrode** mixture uniformly. Supplies **lithium** of required amount. Increases capacity of secondary **battery**. Has extremely thin **lithium foil**.

Dwg.5/5

FS CPI EPI

FA AB; GI

MC CPI: L03-E01B5

EPI: X16-B01F1; X16-E01; X16-E01G

L69 ANSWER 54 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 1998-574020 [49] WPIX

DNN N1998-447192 DNC C1998-172167

TI **Lithium secondary battery** - includes **electrodes** having coating film comprising active material and binder containing denatured polyvinylidene fluoride group.

DC A85 L03 X16

PA (HITM) HITACHI MAXELL KK

CYC 1

PI JP 10255760 A 19980925 (199849)* 7p H01M004-02

ADT JP 10255760 A JP 1997-81987 19970314

PRAI JP 1997-81987 19970314

IC ICM H01M004-02

ICS H01M004-62; H01M010-40

AB JP 10255760 A UPAB: 19981210

The **battery** includes a **sheet like anode** (1)

and **cathode** (2) inbetween which a separator (3) is enclosed. The **anode** or the **cathode** includes a coating film comprising active material and binder that is **laminated** on an electrically conductive base. The binder includes denatured polyvinylidene fluoride group polymer obtained by copolymerisation of monoester of unsaturated dibasic acid and vinylidene fluoride.

ADVANTAGE - Prevents reduction in **battery** capacity.

Dwg.1/2

FS CPI EPI

FA AB; GI

MC CPI: A04-E10B; A04-F07; A12-E06A; L03-E01B5

EPI: X16-B01F1; X16-E01; X16-E09

L69 ANSWER 55 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1997:557400 CAPLUS

DN 127:222943

ED Entered STN: 01 Sep 1997

TI **Batteries** and secondary **lithium batteries**

IN Nakai, Kenji; Takashima, Masayuki

PA Shin-Kobe Electric Machinery Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01M004-66

ICS H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09213338	A2	19970815	JP 1996-13543	19960130
PRAI	JP 1996-13543		19960130		
AB	The batteries use collectors composed of a thin conductive film coated polymer film or sheet for their cathodes and/or anodes . The batteries use cathodes containing a Li intercalating material applied on a cathode collector and anodes containing a Li intercalating carbonaceous material applied on an anode collector, where either or both collectors are a conductive film coated polymer film or sheet . The conductor coating is preferably formed by vapor deposition. These batteries are lightwt. and have high energy d.				
ST	lithium battery electrode collector; battery electrode conductor coated polymer collector; vapor deposition electrode polymer collector coating				
IT	Battery electrodes (collectors from conductive film coated poly(ethylene terephthalate) sheets for electrodes in batteries)				
IT	Polyesters, uses RL: DEV (Device component use); PEP (Physical, engineering or chemical				

process); PROC (Process); USES (Uses)
 (collectors from conductive film coated poly(ethylene terephthalate)
sheets for electrodes in batteries)

IT Carbonaceous materials (technological products)
 RL: DEV (Device component use); PEP (Physical, engineering or chemical
 process); PROC (Process); USES (Uses)
 (collectors from **copper** coated poly(ethylene terephthalate)
sheets for carbonaceous anodes in secondary
lithium batteries)

IT Vapor deposition process
 (manufacture of conductive film coated poly(ethylene terephthalate)
sheet collectors by vapor deposition for
electrodes in batteries)

IT 7429-90-5, Aluminum, uses 12190-79-3, Cobalt
 lithium oxide (CoLiO2)
 RL: DEV (Device component use); PEP (Physical, engineering or chemical
 process); PROC (Process); USES (Uses)
 (collectors from aluminum coated poly(ethylene terephthalate)
sheets for lithium cobaltate cathodes in
batteries)

IT 25038-59-9, Poly(ethylene terephthalate), uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical
 process); PROC (Process); USES (Uses)
 (collectors from conductive film coated poly(ethylene terephthalate)
sheets for electrodes in batteries)

IT 7440-50-8, Copper, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical
 process); PROC (Process); USES (Uses)
 (collectors from **copper** coated poly(ethylene terephthalate)
sheets for carbonaceous anodes in secondary
lithium batteries)

L69 ANSWER 56 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
 AN 1997:388791 CAPLUS
 DN 127:37223
 ED Entered STN: 21 Jun 1997
 TI Nonaqueous electrolyte secondary **batteries** with current
 collectors containing metal-coated resin **sheets**
 IN Sugano, Naoyuki
 PA Sony Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 8 pp.
 CODEN: JKXXAF

DT Patent
 LA Japanese
 IC ICM H01M004-66
 ICS H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	JP 09120818	A2	19970506	JP 1995-279227	19951026
PRAI	JP 1995-279227		19951026		

AB Claimed **batteries**, using **cathodes** containing LiXMO_2 (M = Ni, Co, Fe, and/or Mn) and Li or Li-intercalating anodes, have current collectors comprising resin **sheets** having conductive metal surfaces. The **batteries** have high energy d.

ST **electrode** current collector metal **coated** resin;
lithium battery electrode current collector

IT **Battery anodes**
Battery cathodes
(current collectors containing metal-coated resin **sheets** for nonaq. **batteries** with high energy d.)

IT Polyesters, uses
Polyimides, uses
Polyolefins
RL: DEV (Device component use); USES (Uses)
(current collectors containing metal-coated resin **sheets** for nonaq. **batteries** with high energy d.)

IT Secondary **batteries**
(**lithium**; current collectors containing metal-coated resin **sheets** for nonaq. **batteries** with high energy d.)

IT Polyketones
Polyketones
RL: DEV (Device component use); USES (Uses)
(polyether-; current collectors containing metal-coated resin **sheets** for nonaq. **batteries** with high energy d.)

IT Polyethers, uses
Polyethers, uses
RL: DEV (Device component use); USES (Uses)
(polyketone-; current collectors containing metal-coated resin **sheets** for nonaq. **batteries** with high energy d.)

IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); USES (Uses)
(**anode**; current collectors containing metal-coated resin **sheets** for nonaq. **batteries** with high energy d.)

IT 12190-79-3, **Lithium cobalt oxide** (LiCoO_2)
RL: DEV (Device component use); USES (Uses)
(**cathode**; current collectors containing metal-coated resin **sheets** for nonaq. **batteries** with high energy d.)

IT 9020-32-0, Polyethylene naphthalate 9020-73-9 24968-12-5, Polybutylene terephthalate 25038-59-9, Polyethylene terephthalate, uses 26062-94-2, Polybutylene terephthalate
RL: DEV (Device component use); USES (Uses)
(current collectors containing metal-coated resin **sheets** for nonaq. **batteries** with high energy d.)

IT 7429-90-5, Aluminum, uses 7440-02-0, **Nickel**, uses 7440-50-8, **Copper**, uses
RL: DEV (Device component use); USES (Uses)
(film; current collectors containing metal-coated resin **sheets** for nonaq. **batteries** with high energy d.)

DN 127:68506
 ED Entered STN: 09 Jul 1997
 TI Spiral type **lithium batteries** and their manufacture
 IN Arae, Shuichi; Izumi, Akihide; Ishiguro, Yasuhiro; Suzuki, Masaaki;
 Murakami, Yuki Yoshi; Nakada, Hiroyuki
 PA Zaidan Hojin Ships and Oceans, Japan; Fuji Electrochemical Co., Ltd.
 SO Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF

DT Patent
 LA Japanese
 IC ICM H01M002-04
 ICS H01M006-16
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09120803	A2	19970506	JP 1995-275842	19951024
PRAI	JP 1995-275842		19951024		

AB The **batteries** have a case also serving as a terminal for 1
electrode, an **electrode** stack and an electrolyte in the
 case, a cover sealed by an insulator gasket at the case, a ring welding
 plate contacting the cover, a vertical elec. lead plate forming a shortest
 passage between the other **electrode** and the the welding
plate; where the cover has a **lamine** film and a packing
 inserted successively in a cap shaped terminal **plate** for the
 other **electrode**. The **batteries** are prepared by
 inserting the **electrode** stack having the lead **plate** in
 the case, forming a bottle neck around the open end of the case, placing
 the welding plate inside the sealing gasket, welding the plate to the lead
plate, injecting the **electrolyte**, inserting the
lamine sheet and packing in the cap shaped
electrode terminal, bending the edge of the cap shaped terminal to
 hold the **lamine** sheet and packing to form the cover,
 placing the cover on top of the welding plate, and sealing the case.
 ST **lithium** spiral **battery** structure manuf
 IT Primary **batteries**
 (structure and manufacture of spiral type **lithium**
batteries)

L69 ANSWER 58 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
 AN 1997:195591 CAPLUS
 DN 126:188487
 ED Entered STN: 26 Mar 1997
 TI Solid polymer electrolyte **batteries** with improved current
 collectors
 IN Kano, Koji; Tsucha, Kenji; Myasaka, Kojiro; Anzai, Kazuo
 PA Toshiba Battery, Japan
 SO Jpn. Kokai Tokkyo Koho, 11 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01M004-64

ICS H01M004-02; H01M004-04; H01M004-66; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09022699	A2	19970121	JP 1995-171134	19950706
PRAI	JP 1995-171134		19950706		

AB The **batteries** use **cathodes** having an active mass mixture containing a nonaq. electrolyte solution and a polymer retaining the solution applied on an Al foil collector, an **anode** having a **Li intercalating** carbonaceous material mixed with the electrolyte solution on a collector, and an electrolyte membrane containing the electrolyte solution and the polymer between the **electrodes**; where the Al foil has roughened surface facing the active mass layer or has $\leq 5\%$ fine perforation. The **batteries** may also use **Cu anode** collectors having roughened surface facing the **anode** active mass layer or having $\leq 5\%$ fine perforation in place of or in addition to the surface roughened or perforated **cathode** collectors. The collectors may be coated with a conductive polymer layer. These **electrodes** have good adhesion of the active mass to the collectors.

ST polymer electrolyte **battery electrode** collector;
lithium battery electrode collector treatment;
 aluminum **cathode** collector treatment **battery**;
copper anode collector treatment **battery**

IT Carbon fibers, uses

RL: DEV (Device component use); USES (Uses)
 (**lithium intercalating** carbon fiber **anodes**
 using **copper** collectors with roughened surface or fine
 perforations or conductive coatings for **batteries**)

IT **Battery electrodes**
 (metal collector **foils** with roughened surface or fine
 perforations or conductive **coatings** for secondary polymer
electrolyte lithium batteries)

IT 7429-90-5, Aluminum, uses

RL: DEV (Device component use); PEP (Physical, engineering or chemical
 process); PROC (Process); USES (Uses)
 (aluminum collector **foils** with roughened surface or fine
 perforations or conductive coatings for **lithium** manganese
 oxide **cathodes** for **batteries**)

IT 24937-79-9, Poly(vinylidene fluoride)

RL: MOA (Modifier or additive use); USES (Uses)
 (conductive coatings containing acetylene black and poly(vinylidene
 fluoride) for **electrode** collectors in solid polymer
 electrolyte **batteries**)

IT 7440-50-8, Copper, uses

RL: DEV (Device component use); PEP (Physical, engineering or chemical
 process); PROC (Process); USES (Uses)
 (**copper** collector **foils** with roughened surface or
 fine perforations or conductive coatings for **lithium**
intercalating carbonaceous **anodes** for
batteries)

IT 12057-17-9, **Lithium** manganese oxide (LiMn2O4)
RL: DEV (Device component use); USES (Uses)
(**lithium** manganese oxide **cathodes** using aluminum
collector **foils** with roughened surface or fine perforations
or conductive coatings for **batteries**)

L69 ANSWER 59 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1997-412580 [38] WPIX
DNN N1997-343773
TI Non-aqueous **electrode plate** for **electrolyte**
secondary **battery** - includes composition of active material
layer varying along thickness direction.
DC X16
PA (NIPQ) DAINIPPON PRINTING CO LTD
CYC 1
PI JP 09185960 A 19970715 (199738)* 6p H01M004-02
ADT JP 09185960 A JP 1995-352416 19951228
PRAI JP 1995-352416 19951228
IC ICM H01M004-02
ICS H01M004-04; H01M004-66
AB JP 09185960 A UPAB: 19970922
The non-aqueous **electrode plate** includes a metallic
foil collector object with **laminated** active material
layer comprising binder material. The composition of the active
material layer varies in the thickness direction.
USE - For **lithium** ion secondary **battery**.
ADVANTAGE - Excels in adhesion nature.
Dwg.0/0
FS EPI
FA AB
MC EPI: X16-B01F1; X16-E01; X16-E02

L69 ANSWER 60 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1996:537626 CAPLUS
DN 125:173346
ED Entered STN: 10 Sep 1996
TI **Coated electrodes** for non-aqueous liquid
electrolyte-type **batteries** and supercapacitors, the
batteries and supercapacitors containing the **electrodes**,
and manufacture of the **electrodes**
IN Andrieu, Xavier; Josset, Laurence
PA Saft, Fr.
SO PCT Int. Appl., 31 pp.
CODEN: PIXXD2
DT Patent
LA French
IC ICM H01M002-16
ICS H01M004-06
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1
PATENT NO. KIND DATE APPLICATION NO. DATE

PI WO 9620504 A1 19960704 WO 1995-FR1742 19951227
W: JP, US
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE
FR 2729009 A1 19960705 FR 1994-15790 19941228
FR 2729009 B1 19970131
EP 748522 A1 19961218 EP 1995-943284 19951227
EP 748522 B1 20010103
R: DE, FR, GB
JP 09510045 T2 19971007 JP 1995-520266 19951227
US 5811205 A 19980922 US 1996-700381 19960816
PRAI FR 1994-15790 A 19941228
WO 1995-FR1742 W 19951227

AB Of the **electrodes**, comprising a 1st electron-conducting porous layer ≥ 1 surfaces of which are coated with a 2nd microporous polymeric material, the 2nd coating is obtained by impregnating the 1st layer with a solution of the polymer, and coagulating the polymer. For the supercapacitors, the 1st **coating** contains an **electrochem** . active material selected from activated C and transition metal oxides, and the 2nd coating consists of polyvinylidene fluoride (I). For the **batteries**, the 1st **coating** contains an **electrochem**. active material selected from materials capable of being **intercalated** with alkali metal ions, and the 2nd coating consists of I. The **coated electrodes** are manufactured by forming the 1st coating, coating the 1st coating with a film of a solution of a polymer dissolved in a 1st volatile solvent, contacting the film with a volatile antisolvent miscible with the 1st solvent, and drying the **electrode** to remove the two solvents. The **electrode** of a button-type **battery** consisted of a **Cu foil** coated with a paste containing ≥ 90 weight% graphite and balance I. The 2nd coating opposite the current collector was formed by applying a solution containing 12.5 weight% I and balance Et₃PO₄, and the coagulating the polymer

in water. The coating was dried at 35 and 120° an had thickness 50 μm and porosity 75%. The **electrode** was impregnated with an electrolyte solution consisting of a mixture of 1.5M Li trifluoromethanesulfonimide and 0.1M LiClO₄ in a nonaq. solvent consisting of propylene carbonate 20, ethylene carbonate 20, and di-Me carbonate 60%.

ST **electrode coating battery** supercapacitor; porous carbon **coating electrode**; polymer porous coating carbon; polyvinylidene fluoride polymer coating; solvent antisolvent polymer coating; nonaq electrolyte **battery electrode**; **lithium** trifluoromethanesulfonimide perchlorate electrolyte

IT Transition metal oxides
RL: TEM (Technical or engineered material use); USES (Uses)
(coatings; porous polymer-coated electrodes
for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

IT **Battery electrolytes**
(nonaq.; porous polymer-coated electrodes for
non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

IT **Batteries**, secondary

- Coating process
- Crosslinking agents
- Solvents
- Wetting agents
 - (porous polymer-coated electrodes for non-aqueous liquid electrolyte-type batteries and supercapacitors)
- IT Polyethers, uses
- Polymers, uses
- Polysulfones, uses
- RL: TEM (Technical or engineered material use); USES (Uses)
 - (porous polymer-coated electrodes for non-aqueous liquid electrolyte-type batteries and supercapacitors)
- IT Solvents
 - (anti-, porous polymer-coated electrodes for non-aqueous liquid electrolyte-type batteries and supercapacitors)
- IT Electrodes
 - (battery, porous polymer-coated electrodes for non-aqueous liquid electrolyte-type batteries and supercapacitors)
- IT Inclusion compounds
- RL: TEM (Technical or engineered material use); USES (Uses)
 - (intercalation, alkali metal ion-intercalated; porous polymer-coated electrodes for non-aqueous liquid electrolyte-type batteries and supercapacitors)
- IT Alkenes, uses
- RL: TEM (Technical or engineered material use); USES (Uses)
 - (polymers, porous polymer-coated electrodes for non-aqueous liquid electrolyte-type batteries and supercapacitors)
- IT 7440-44-0, Carbon, uses
- RL: TEM (Technical or engineered material use); USES (Uses)
 - (activated, coating; porous polymer-coated electrodes for non-aqueous liquid electrolyte-type batteries and supercapacitors)
- IT 9003-39-8, Polyvinylpyrrolidone
- RL: TEM (Technical or engineered material use); USES (Uses)
 - (admixts. with poly(vinylidene fluoride); porous polymer-coated electrodes for non-aqueous liquid electrolyte-type batteries and supercapacitors)
- IT 56-81-5, Glycerin, uses 64-17-5, Ethanol, uses 75-05-8, Acetonitrile, uses 107-21-1, Ethyleneglycol, uses 108-32-7, Propylene carbonate 141-78-6, Ethyl acetate, uses 7732-18-5, Water, uses 30899-19-5, Pentanol 35296-72-1, Butanol
- RL: NUU (Other use, unclassified); USES (Uses)
 - (antisolvent; porous polymer-coated electrodes for non-aqueous liquid electrolyte-type batteries and supercapacitors)
- IT 7440-50-8, Copper, uses
- RL: TEM (Technical or engineered material use); USES (Uses)
 - (electrode; porous polymer-coated electrodes for non-aqueous liquid electrolyte-type batteries and supercapacitors)
- IT 90076-65-6
- RL: TEM (Technical or engineered material use); USES (Uses)

(nonaq. electrolyte solns. containing **lithium** perchlorate and; porous polymer-coated **electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

IT 7791-03-9, **Lithium** perchlorate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (nonaq. electrolyte solns. containing **lithium** trifluoromethanesulfonimide and; porous polymer-coated **electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

IT 67-64-1, Acetone, uses 127-19-5, Dimethylacetamide
 RL: NUU (Other use, unclassified); USES (Uses)
 (porous polymer-coated **electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

IT 9002-86-2, Poly(vinyl chloride) 9004-35-7, Cellulose acetate
 9011-14-7, Polymethylmethacrylate 9011-17-0, Hexafluoropropene-vinylidene fluoride copolymer 24937-79-9, Poly(vinylidene fluoride) 25213-24-5, Vinyl alcohol-vinyl acetate copolymer 25684-76-8, Tetrafluoroethene-vinylidene fluoride copolymer
 RL: TEM (Technical or engineered material use); USES (Uses)
 (porous polymer-coated **electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

IT 67-68-5, DMSO, uses 68-12-2, Dimethylformamide, uses 75-09-2, Dichloromethane, uses 78-40-0, Triethyl phosphate 108-94-1, Cyclohexanone, uses 680-31-9, Hexamethylphosphoramide, uses 872-50-4, N-Methylpyrrolidone, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (solvent; porous polymer-coated **electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

L69 ANSWER 61 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 1996-279842 [29] WPIX

DNN N1996-235317 DNC C1996-088825

TI Porous metallic **sheet battery electrode**
 substrate - in which the **sheet** is formed of intertwined metallic fibres.

DC L03 M22 P53 X16

IN SUGIKAWA, H

PA (SUGI-I) SUGIKAWA H; (KATA-N) KATAYAMA SPECIAL IND LTD; (KATA-N) KATAYAMA TOKUSHU KOGYO KK

CYC 16

PI EP 717457 A2 19960619 (199629)* EN 41p H01M004-74
 R: BE CH DE ES FR GB IT LI NL SE

CA 2163819 A 19960529 (199638) H01M004-80

JP 08213026 A 19960820 (199643) 15p H01M004-80

EP 717457 A3 19970108 (199712) H01M004-74

CN 1127433 A 19960724 (199749) H01M004-74

EP 717457 B1 20000202 (200011) EN H01M004-74

R: BE CH DE ES FR GB IT LI NL SE

DE 69514900 E 20000309 (200019) H01M004-74

US 6110417 A 20000829 (200043) B22F003-10

CA 2254551 C 20000822 (200052) EN H01M004-80

CA 2163819 C 20001226 (200104) EN H01M004-80

KR 226040 B1 19991015 (200110) H01M004-04
 KR 242814 B1 20000315 (200122) H01M004-04
 TW 492214 A 20020621 (200323) H01M010-38
 JP 2003193110 A 20030709 (200354) 24p B22F003-11

ADT EP 717457 A2 EP 1995-118659 19951127; CA 2163819 A CA 1995-2163819
 19951127; JP 08213026 A JP 1995-295734 19951114; EP 717457 A3 EP
 1995-118659 19951127; CN 1127433 A CN 1995-119623 19951128; EP 717457 B1
 EP 1995-118659 19951127; DE 69514900 E DE 1995-614900 19951127, EP
 1995-118659 19951127; US 6110417 A Div ex US 1995-563456 19951128, Div ex
 US 1998-108120 19980701, US 1999-258866 19990226; CA 2254551 C Div ex CA
 1995-2163819 19951127, CA 1995-2254551 19951127; CA 2163819 C CA
 1995-2163819 19951127; KR 226040 B1 KR 1995-44143 19951128; KR 242814 B1
 Div ex KR 1995-44143 19951128, KR 1999-18808 19990525; TW 492214 A TW
 1997-106586 19951124; JP 2003193110 A Div ex JP 1995-295734 19951114, JP
 2002-331258 19951114

FDT DE 69514900 E Based on EP 717457

PRAI JP 1994-293286 19941128

REP No-SR.Pub; 4.Jnl.Ref; DE 2720278; EP 523724; JP 01320762; JP 05025509; JP
 56145668; JP 59163754; US 3702019; US 3835514; US 3895960; US 4222977; US
 4913737; WO 9535177

IC ICM B22F003-10; B22F003-11; H01M004-04; H01M004-74; H01M004-80;
 H01M010-38
 ICS B22F001-00; B22F003-00; H01M004-24; H01M004-26; H01M004-32;
 H01M004-82

AB EP 717457 A UPAB: 19960724

A porous metallic **sheet**, to be used as an **electrode**
 substrate of a **battery**, has a porous fibrous structure or a
 three-dimensional net-shaped structure in which a framework surrounding
 pores of the porous fibrous structure or those of the three-dimensional
 net-shaped structure is formed of metallic fibres made of metallic
 powders.

The porous metallic **sheets** are formed by intertwining
 metallic fibres formed by convergent drawing, metallic fibre spinning,
 metallic **foil** cutting or by chattering vibration, and consisting
 of short fibres from 1 mm to 60 mm.

The porous fibre structure consists of a nonwoven, a woven, a
 knitted, a felt, a screen-shaped, an expanded and a net-shaped
sheet and the three-dimensional net-shaped structure consists of a
 foamed, a sponge-like and a honeycomb-shaped **sheet**.

Also claimed are **sheets** with circular, rectangular or
 rhombic through-holes with an **electrode plate** lead
 formed in the non-through-hole region, similarly or differently configured
sheets laminated to one another, forming an
electrode plate of a **nickel** hydrogen,
nickel cadmium and a primary or secondary **lithium**
battery by applying an active substance, and methods of
 manufacturing a porous metallic **sheet**.

In the porous metallic **sheet** the diameters of the metallic
 powders are in a range from 0.1 μm to 5 μm , the diameters of the
 metallic fibres are in a range from 1.0 μm to 100 μm , and the thickness
 of the porous fibrous structure or that of the three-dimensional
 net-shaped structure is in a range from 5 μm to 5000 μm .

USE - A porous metallic **sheet** to be used as the substrate of a **battery electrode** and the **electrode plate**.

ADVANTAGE - The thickness of the porous metallic **sheet** and the percentage of pores can be easily controlled. The thinner the porous metallic **sheet** the less expensive is the material cost. The active substance is not removed in subsequent processes. A **sheet** having a high tensile force can be obtained. The **sheet** allows electric current to flow reliably, serving as a highly conductive substrate. The **sheet** has a lower resistance in ohms/mm than a conventional punched metal **sheet**. Through-holes and leads can be formed simultaneously with fibre intertwining enabling the **sheet** to be manufactured at low cost.

Dwg.0/28

FS CPI EPI GMPI

FA AB

MC CPI: L03-E01B; M22-H01; M22-H03B; M22-H03G

EPI: X16-E02

L69 ANSWER 62 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1995:733314 CAPLUS

DN 123:118540

ED Entered STN: 12 Aug 1995

TI Secondary nonaqueous **batteries**

IN Kashimura, Toshihide; Shionuma, Keiji

PA Sony Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01M010-40

ICS H01M004-02; H01M010-04

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	JP 07130394	A2	19950519	JP 1993-272852	19931029
PRAI	JP 1993-272852		19931029		

AB The **batteries** use an **anode** and a **cathode** having an active mass applied on both sides of a metal **foil**, where ≥ 1 of the **electrodes** have a resin layer **coated** on the edge of the **electrode** along its longitudinal direction. This structure prevents short circuit in the **batteries**.

ST **battery electrode resin coating**

IT **Cathodes**

(**battery, cathodes** with resin coated edges for **batteries**)

IT **Electrodes**

(**battery, electrodes** with resin coated edges for secondary nonaq. **batteries**)

IT **Anodes**

(battery, lithium intercalating carbon anodes with resin coated edges for batteries)

IT 12190-79-3, Lithium cobalt oxide (LiCoO₂)
 RL: DEV (Device component use); USES (Uses)
 (cathodes with resin coated edges for batteries)

IT 9003-42-3, Poly(ethyl methacrylate) 24937-79-9, PvdF
 RL: DEV (Device component use); USES (Uses)
 (electrodes with resin coated edges for batteries)

IT 7439-93-2, Lithium, uses 7440-44-0, Carbon, uses
 RL: DEV (Device component use); USES (Uses)
 (lithium intercalating carbon anodes with resin coated edges for batteries)

L69 ANSWER 63 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
 AN 1995:438203 CAPLUS
 DN 122:192514
 ED Entered STN: 24 Mar 1995
 TI Manufacture of sheet-like plate and batteries using this plate.
 IN Fukumura, Kenichi; Noda, Yoshiaki
 PA Fuji Photo Film Co., Ltd., Japan
 SO Eur. Pat. Appl., 21 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 IC ICM H01M004-04
 ICS B05D001-26; B05C005-02
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 639865	A1	19950222	EP 1994-108947	19940610
	EP 639865	B1	19980311		
	R: DE, FR, GB				
	JP 07065816	A2	19950310	JP 1994-154299	19940614
	US 5674556	A	19971007	US 1996-688695	19960729
PRAI	JP 1993-143531		19930615		
	US 1994-258664		19940610		

AB The plate is produced by discharging an electrode material coating solution from an extrusion-type slot die and coating the solution on an elec.-conductive support running around a backup roll. The battery comprises a cathode, an anode, and an electrolyte. Both, the cathode and anode are produced by the invention method.

ST battery sheet like electrode manuf

IT Batteries, secondary
 (manufacture of sheet-like)

IT Coke
 RL: DEV (Device component use); USES (Uses)
 (petroleum, manufacture of sheet-like battery anodes of)

IT 7439-93-2, Lithium, uses 7440-09-7, Potassium, uses
7440-23-5, Sodium, uses

RL: DEV (Device component use); USES (Uses)
(manufacture of **sheet-like battery anodes**
intercalatable by)

IT 13596-51-5, Cobalt lithium vanadium oxide
(CoLiVO₄) 21651-19-4, Tin oxide (SnO) 58500-40-6,
Tin silicate

RL: DEV (Device component use); USES (Uses)
(manufacture of **sheet-like battery anodes** of)

IT 12190-79-3, Cobalt lithium oxide (CoLiO₂)

RL: DEV (Device component use); USES (Uses)
(manufacture of **sheet-like battery cathodes**
of)

L69 ANSWER 64 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 1993-095831 [12] WPIX

DNN N1993-073254 DNC C1993-042312

TI Plastics-supported metallic foil production - by vacuum
metallisation and electroplating of resin film.

DC A35 L03 M14 X16

IN CARIGNAN, C; ST-AMANT, G

PA (STAM-I) ST-AMANT G; (HYDR-N) HYDRO QUEBEC

CYC 20

PI EP 533575 A1 19930324 (199312)* FR 12p C23C028-02

R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE

CA 2051604 A 19930318 (199322) FR C25D005-56

JP 05195287 A 19930803 (199335) 8p C25D005-56

US 5423974 A 19950613 (199529) 9p C23C014-24

ADT EP 533575 A1 EP 1992-402561 19920917; CA 2051604 A CA 1991-2051604
19910917; JP 05195287 A JP 1992-290660 19920917; US 5423974 A Cont of US
1992-945893 19920917, US 1994-314522 19940919

PRAI CA 1991-2051604 19910917

REP 3.Jnl.Ref; EP 215557; JP 60216471; JP 61270167; JP 63310955; US 4231848;
US 4512855; US 4552626; US 4832983

IC ICM C23C014-24; C23C028-02; C25D005-56

ICS B32B015-08; C23C014-04; C23C014-20; C23C014-58; H01M004-84

AB EP 533575 A UPAB: 19931113

Production of metallic foil, comprising a metal-coated
non-conductive resin film, involves (a) vacuum metallising one or both
faces of the film to obtain a substrate with sufficient electrical
conductivity to allow uniform electrodeposition; and (b) electroplating
one or more metals onto the metallised surface to obtain a thin metallic
film with a metal thickness of 0.1-4 microns, the metallised substrate
being selected to be compatible and to facilitate the electroplating step,
and the resulting metallic foil being adherent and supported on
the plastic film.

A novel metallic foil comprises (a) an insulating synthetic
resin support film; (b) a vacuum metallised deposit on most of at least
one face of the film, leaving a non-metallised strip region; and (C) an
electrochemical deposit of increasing thickness from the
strip region to the opposite edge, the mean total thickness of the

metallised and **electrochemical deposits** being 0.1-4 microns.

ADVANTAGE - The process produces high quality metal films of precisely controlled thickness in a rapid and simple manner, allows selective metal coating and use of various metals and can be carried out in automatic machines since a plastic support is used.

3/12

Dwg.3/12

FS CPI EPI

FA AB; GI

MC CPI: A11-C04B1; A12-S06B; L03-H04A; M11-B05; M13-G

EPI: X16-B01F1; X16-E02

L69 ANSWER 65 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1992:493771 CAPLUS

DN 117:93771

ED Entered STN: 05 Sep 1992

TI Sealed planar **batteries**

IN Nakai, Kenji; Hironaka, Kensuke; Takabayashi, Hisaaki; Higashimoto, Koji

PA Shin-Kobe Electric Machinery Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 3 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01M002-02

ICS H01M002-06; H01M002-16

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 04106865	A2	19920408	JP 1990-224968	19900827
PRAI	JP 1990-224968		19900827		

AB The **batteries** have an **electrode-separator stack** covered with polymer films or **sheets**, which are multilayer **laminates** having ≥ 1 metal layers on the whole surface except the edge parts and ≥ 1 elec. conductive through holes in the laminar structure. Secondary **Li/MnO₂ batteries** were sealed by the invention **laminates** comprising, from the **electrode** side out, vapor-deposited Al, thermally adhesive modified polyethylene, poly(vinylidene chloride), poly(ethylene terephthalate), and vapor-deposited Al layers. The **laminates** provided the flexible **batteries** reliable sealing.

ST **lithium** manganese dioxide **battery** sealing; aluminum polyethylene **lamine battery** sealing; polyvinylidene chloride **lamine battery** sealing; polyethylene terephthalate **lamine battery** sealing

IT **Batteries**, secondary
(**lithium/manganese dioxide**, sealing of, aluminum-coated polymer **laminates** for)

IT Seals (mechanical)
(of **lithium/manganese dioxide batteries**, aluminum-coated polymer **laminates** for)

IT 9002-85-1, Poly(vinylidene chloride) 9002-88-4, Polyethylene
25038-59-9, Poly(ethylene terephthalate), uses
RL: USES (Uses)
(**laminates** containing layers of, aluminum-coated, for sealing
lithium/manganese dioxide batteries)

IT 7429-90-5, Aluminum, uses
RL: USES (Uses)
(**laminates** containing vapor-deposited, polymer, for sealing
lithium/manganese dioxide batteries)

L69 ANSWER 66 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1992:183529 CAPLUS

DN 116:183529

ED Entered STN: 03 May 1992

TI **Electrodeposition** of tantalum **coatings** on metallic
substrates such as steel

IN Szklarski, Wojciech; Los, Przemyslaw; Bogacz, Aleksander; Josiak, Jerzy

PA Politechnika Wroclawska, Pol.; Akademia Medyczna, Wroclaw

SO Pol., 5 pp. Abstracted and indexed from the unexamined application.

CODEN: POXXA7

DT Patent

LA Polish

IC ICM C25D003-66

CC 72-8 (Electrochemistry)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	PL 153113	B1	19910329	PL 1987-269822	19871229
PRAI	PL 1987-269822		19871229		

AB The **deposition** is carried out by **electrolysis** of
molten salts containing Ta, Li, and K compds. A bath with composition
LiF 20-27, KF 48-62, K₂TaF₇ 10-30, K₂NiI₄ 0.3-1.4 and NH₄HF₂ 3-5 weight% was
used. A Ta **foil**, in the shape of the plated substrate, was used
as an **anode**. An atmospheric of neutral gas was maintained during the
electrolysis. After finishing the process, the bath was cooled to the
crystallization temperature Subsequently, the Ta-plated product was immersed
above the bath and cooled under neutral gas to .apprx.370 K. Electrolysis
was carried out at c.d. 0.05-0.06 A/cm and 1070-1200 K.

ST **titanium** electrodeposition metallic substrate

IT 1341-49-7, Ammonium hydrogen difluoride 7789-23-3, Potassium fluoride

7789-24-4, **Lithium** fluoride, uses 16924-00-8 140212-81-3

RL: USES (Uses)

(**electrodeposition** of tantalum on metallic substrates from
baths containing)

IT 7440-25-7, Tantalum, uses

RL: PROC (Process)

(**electrodeposition** of, on metallic substrates, bath for)

L69 ANSWER 67 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 1989-224715 [31] WPIX

TI Non-aqueous-electrolyte **battery** production - by **laminating**
aluminium **foil** and separator **sheet** for

electrode unit, and placing on **lithium** plate in **cathode** can NoAbstract Dwg 1/2.

DC L03 X16
 PA (SAOL) SANYO ELECTRIC CO
 CYC 1
 PI JP 01161666 A 19890626 (198931)* 4p
 ADT JP 01161666 A JP 1987-320226 19871217
 PRAI JP 1987-320226 19871217
 IC H01M004-12
 FS CPI EPI
 FA NOAB; GI
 MC CPI: L03-E01B8
 EPI: X16-A02A; X16-E03

L69 ANSWER 68 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1989:26648 CAPLUS

DN 110:26648

ED Entered STN: 21 Jan 1989

TI **Lithium-manganese dioxide batteries**

IN Sasama, Hiroshi; Niso, Kiyoshi; Imaizumi, Masahiko; Iwamaru, Futayasu; Ikehata, Rokuro

PA Hitachi Maxell, Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01M006-16

ICS H01M004-06

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 63175349	A2	19880719	JP 1987-7355	19870114
PRAI	JP 1987-7355		19870114		

AB **Li-MnO₂ batteries** have an **anode** of a **Li plate** and an **electrochem.** alloyed **Li-M** alloy layer on the separator side, a **MnO₂ cathodes** having a d. of 3.00-3.15 g/cm³, and a laminar separator of a microporous resin film on the **anode** side and a nonwoven cloth on the **cathode** side. M is Al, Sn, Zn, Pb, Bi, Si, Sb, and/or Mg. Thus, a mixture of MnO₂ 100, graphite flakes 10, and PTFE 1 part was pressed to obtain **cathode** pellets of d. = 2.80-3.20 g/cm³, which were used in **batteries** using **anodes** of a 0.2-mm-thick **Li plate** covered with a 0.005-mm-thick Al foil, separators of a microporous polypropylene film-nonwoven polypropylene cloth laminate, and a 1M LiClO₄/2:1 (volume) propylene carbonate-MeOC₂H₄OMe electrolyte. After discharged through a 15-kΩ load for 270 h, **batteries** using the invention **cathodes** had higher closed-circuit voltage V (8-ms pulse discharge through a 5-kΩ load at -10°) than **batteries** using **cathodes** of higher or lower d., and all **batteries** had higher V than similar

batteries using **anodes** without the Al foils.
 ST **lithium battery** laminar polypropylene separator;
 manganese dioxide **cathode density battery**
 IT **Cathodes**
 (battery, manganese dioxide, performance in relation to d.
 of)
 IT **Batteries**, secondary
 (separators, polypropylene film-nonwoven polypropylene cloth, laminar
 microporous)
 IT **7439-93-2, Lithium**, uses and miscellaneous
 RL: USES (Uses)
 (anodes, with lithium-aluminum alloy layers on
 separator side, for **batteries**)
 IT **1313-13-9, Manganese dioxide**, uses and miscellaneous
 RL: USES (Uses)
 (cathodes, **lithium battery** performance in
 relation to d. of)
 IT **9003-07-0, Polypropylene**
 RL: USES (Uses)
 (separators from laminates of porous films and nonwoven cloth
 of, for **lithium-manganese dioxide batteries**)

L69 ANSWER 69 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
 AN 1989:26649 CAPLUS
 DN 110:26649
 ED Entered STN: 21 Jan 1989
 TI **Lithium batteries** with laminar separators
 IN Sasama, Hiroshi; Miso, Kyoshi; Imaizumi, Masahiko; Okamoto, Osamu;
 Iwamaru, Futayasu
 PA Hitachi Maxell, Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01M006-16
 ICS H01M002-16; H01M004-06
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 63175348	A2	19880719	JP 1987-7354	19870114
PRAI	JP 1987-7354		19870114		

AB The **batteries** have **anodes** of a Li
plate and an **electrochem.** alloyed Li-M alloy
 layer on the separator side and laminar separators of a microporous resin
 film having pore size $\leq 0.3 \mu\text{m}$ on the **anode** side and a
 nonwoven cloth of 70-90 volume% porosity on the **cathode** side. M
 is Al, Sn, Zn, Pb, Bi, Si, Sb,
 and/or Mg. Thus, 25- μm porous polypropylene films having pores of
 0.3- μm diameter were **laminated** with 350- μm nonwoven
 polypropylene cloth having 75 volume% porosity and maximum pore size 20 μm
 to form separators for **Li-MnO2 batteries** using

(lead **electrode**, for strongly adhered **plating** of **nickel**)

IT 116226-30-3P 116226-31-4P
 RL: PREP (Preparation)
 (preparation of)

L69 ANSWER 71 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
 AN 1987:21099 CAPLUS
 DN 106:21099
 ED Entered STN: 24 Jan 1987
 TI Protected **electrode** material and its forming
 IN McLoughlin, Robert Hamilton; Park, George Barry; Cook, John Anthony
 PA Raychem Ltd., UK
 SO Eur. Pat. Appl., 16 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 IC ICM H01M004-02
 ICS H01M002-14; H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38, 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 195684	A2	19860924	EP 1986-302097	19860321
	EP 195684	A3	19880113		
	EP 195684	B1	19910502		
	R: AT, BE, CH, DE, FR, GB, IT, LI, NL, SE				
	JP 61220272	A2	19860930	JP 1986-64662	19860320
	IL 78220	A1	19891215	IL 1986-78220	19860321
	CA 1274276	A1	19900918	CA 1986-504736	19860321
	AT 63181	E	19910515	AT 1986-302097	19860321
	US 4675258	A	19870623	US 1986-924122	19861030
PRAI	GB 1985-7510		19850322		
	US 1986-841914		19860320		
	EP 1986-302097		19860321		

AB The title material comprises a sensitive **electrode** material having a layer of protective material bonded to at least part of its surface by an adhesive which can be swollen by treatment with a liquid to increase the permeability of the adhesive to electrolyte, which is encountered by the protected **electrode** material when incorporated in an electrochem. device. Poly(ethylene oxide) (PEO) was extruded continuously on **Li foil** at 120-140° and passed between chilled nip rolls to produce a uniform 0.15-mm-thick coating. After irradiating the encapsulated **Li** to 15 Mrads with an electron beam at 25°, a layer of microporous polypropylene (Celgard 2400) was adhered to each side of the encapsulated **Li** by pressure **lamination** using nip rolls heated to 75°. Immersion of the resultant **laminates** into a 0.5M LiClO₄ in 1:11 MeOC₂H₄OMe-propylene carbonate electrolyte caused the PEO to swell to a thickness of 0.5 mm without detachment of the polypropylene. The conductivity of

the PEO-polypropylene coating in the same electrolyte was 10-3/ Ω -cm.

ST polypropylene polyethylene oxide lithium anode; battery anode lithium protection; elec cond polypropylene polyethylene oxide

IT Electric conductivity and conduction (of poly(ethylene oxide)-polypropylene, on lithium, in organic electrolyte)

IT Coating materials (poly(ethylene oxide)-polypropylene, on lithium, for batteries)

IT Anodes (battery, lithium, forming of protected)

IT 9003-07-0, Polypropylene
RL: USES (Uses) (anodes protected with, lithium, forming of, for batteries)

IT 7439-93-2, Lithium, uses and miscellaneous
RL: USES (Uses) (anodes, forming of protected, for batteries)

IT 25322-68-3, Poly(ethylene oxide)
RL: USES (Uses) (crosslinked, anodes containing adhesive of, lithium, forming of protected, for batteries)

L69 ANSWER 72 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1985:549593 CAPLUS

DN 103:149593

ED Entered STN: 01 Nov 1985

TI Solid electrolyte battery

PA Hitachi Maxell, Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 3 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01M002-02

ICS H01M006-18

CC 72-3 (Electrochemistry)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 60065442	A2	19850415	JP 1983-174592	19830920
PRAI	JP 1983-174592		19830920		

AB In assembling a solid electrolyte battery using a Li or Li alloy anode, a solid electrolyte, a cathode, and a pair of laminated Al foils having an ionomer resin inner layer and a protective polymer outer layer, the electrode leads are coated with this ionomer and the battery is sealed tightly by fusing the ionomer along the lips of the Al laminate and on the electrode leads.

ST battery lithium solid electrolyte aluminum; sealing solid electrolyte battery ionomer

IT Ionomers
RL: USES (Uses)
(in sealing of solid electrolyte **battery**)
IT **Batteries**, primary
(**lithium**, solid-electrolyte)
IT 7439-93-2, uses and miscellaneous
RL: USES (Uses)
(**anodes**, solid-electrolyte **battery**)
IT 7429-90-5, uses and miscellaneous
RL: USES (Uses)
(in **batteries**, solid-electrolyte)

L69 ANSWER 73 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 1985-045359 [08] WPIX

DNN N1985-033788

TI Compact **battery** powered appliance, e.g. calculator - has
lithium battery cell made from leaves sealed inside
plastic film conductor strips.

DC T01 V04 X16

IN HARA, K

PA (CASK) CASIO COMPUTER CO LTD

CYC 11

PI DE 3427287 A 19850214 (198508)* 37p

FR 2549982 A 19850201 (198511)

GB 2150324 A 19850626 (198526)

JP 60097697 A 19850531 (198528)

US 4670664 A 19870602 (198724)

JP 62271343 A 19871125 (198802)

DE 3427287 C 19880218 (198807)

GB 2150324 B 19880427 (198817)

US 4749875 A 19880607 (198825)

KR 8902040 B 19890608 (199018)

KR 8902331 B 19890630 (199020)

JP 06068862 A 19940311 (199415) H01M002-10

ADT DE 3427287 A DE 1984-3427287 19840724; GB 2150324 A GB 1984-18616
19840620; JP 60097697 A JP 1983-204707 19831102; US 4670664 A US
1984-632199 19840718; JP 62271343 A JP 1987-52210 19830726; GB 2150324 B
GB 1984-18616 19840720; US 4749875 A US 1987-25017 19870312; JP 06068862 A
JP 1991-206103 19831102

PRAI JP 1983-115661 19830726; JP 1983-204707 19831102; JP 1987-52210
19830726

IC G06F001-00; G06F015-20; G06G003-02; H01M002-20; H01M006-12; H05K005-02;
H05K007-14

ICM H01M002-10

ICS G06F001-00; G06F015-20; G06G003-02; H01M002-20; H01M006-12;
H05K005-02; H05K007-14

AB DE 3427287 A UPAB: 19930925

The device is made up of several punched plates (12,14,50) and covers
(13,15) with a frame (11) separating the upper and lower assembly. A
flexible substrate (20) has the calculator ICo (22) and discrete
components (23) mounted on it and fits within the frame (A). A second
area (B) retains the display (30) and a third (C) retains the

battery (60).

The **lithium battery** consists of extremely thin layers (40) to form the **plates** and **electrolyte**. The **battery** is heat sealed inside a plastic film (60) into which conductors (61) are set. Closing the seal forces the conductors into intimate contact with the cell surface, allowing power to be transferred to the flexible substrate.

USE - For calculator.

2/14

FS EPI

FA AB

MC EPI: T01-J01; V04-S09; X16-F01; X16-F03

L69 ANSWER 74 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1983:62083 CAPLUS

DN 98:62083

ED Entered STN: 12 May 1984

TI **Lithium solid electrolyte battery**

PA Toshiba Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 3 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC H01M006-18

CC 72-3 (Electrochemistry)

Section cross-reference(s): 52

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 57154773	A2	19820924	JP 1981-39597	19810320
PRAI	JP 1981-39597		19810320		
AB	In fabricating a laminated Li solid electrolyte battery by successively depositing on a cathode metal sheet a cathode active material layer , a Li3N solid electrolyte layer , a Li anode layer , and a metal anode plate , the laminate is coated with a thermally-shrinkable plastic film so that the centers of the electrode plates are left exposed.				
ST	battery lithium solid electrolyte; lithium nitride solid electrolyte battery				
IT	Batteries , primary (lithium , solid-electrolyte)				
IT	7439-93-2, uses and miscellaneous RL: USES (Uses) (anodes , in solid-electrolyte batteries)				
IT	26134-62-3 RL: PRP (Properties) (lithium battery solid electrolyte)				

L69 ANSWER 75 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 1982-52382E [25] WPIX

KOROMA EIC1700

CR 1980-55191C [31]
TI **Lithium electrode** - with **lithium**
coating and pressed **lithium** pieces on collector.
DC E34 L03 X16
IN ATHEARN, L F
PA (MEDT) MEDTRONIC INC
CYC 1
PI US 4333997 A 19820608 (198225)* 5p
PRAI US 1979-20809 19790315; US 1979-68872 19790822; US 1980-182650
19800829
IC H01M004-40
AB US 4333997 A UPAB: 19930915

Li electrode comprises a collector body alternately overlaid with **Li** in two forms, one comprising an **Li** coating, pref. hot dipped, and the other comprising pressed **Li** pieces, pref. **Li foil laminations**. Either the hot dipped coating or the **Li** pressed pieces may be carried directly on the collector, with the pressed pieces or coating respectively forming the outer surface of the **electrode**. An electrical lead is pref. attached to the collector. This specification is a div. ex. US4292346, which is a div. ex. US4212930, which discloses an **anode** subassembly having a collector, lead and feedthrough coated with **Li**.

The **electrode** is useful in **Li-halogen batteries**. The **Li** coating minimises the chance of delamination of pressed **Li** pieces, and protects the collector in the event of such delamination.

2

FS CPI EPI
FA AB
MC CPI: E31-B03; L03-E01B
EPI: X16-E01; X16-E03

L69 ANSWER 76 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1981-66630D [37] WPIX
TI Solid electrolyte storage **battery** - has negative **electrode** activator of **lithium** (alloy) and **lithium** nitride electrolyte for increased discharge capacitance.

DC A85 L03
PA (CITL) CITIZEN WATCH CO LTD
CYC 1
PI JP 56091374 A 19810724 (198137)* 4p
PRAI JP 1979-167538 19791225
IC H01M004-58; H01M006-18
AB JP 56091374 A UPAB: 19930915

The **battery** comprises a negative **electrode** activator of **Li** (alloy), a solid electrolyte of **Li** nitride (**Li3N**) and a positive **electrode** activator of a nitride of transition metal. The solid **electrolyte** is **deposited** on the negative **electrode** by vacuum **deposition** or sputtering.

The **lithium** nitride electrolyte increases a discharge

capacitance and the **battery** has a long life-time. In an example a **Li foil** of 100 micrometres thickness is placed on a **Ni foil** of 50 micrometres thickness and pressed in Ar gas. The Li_3N is sputtered on the **Li foil** to form the electrolyte layer of 0.5-5 micrometres thickness. Then VN is sputtered on the electrolyte layer to form the positive **electrode** of 70 micrometres thickness.

A collector of **Ni** is formed on the VN layer. The **Ni** collector is covered by a polytetrafluoroethylene layer. The **laminated** layers are placed in a case.

FS CPI
FA AB
MC CPI: A12-E06; L03-E02

L69 ANSWER 77 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1975:582053 CAPLUS

DN 83:182053

ED Entered STN: 12 May 1984

TI **Cathode** for thin and **laminated batteries**

IN Iijima, Takashi; Nishino, Atsushi

PA Matsushita Electric Industrial Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 3 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

NCL 57B203

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 50045926	A2	19750424	JP 1973-97607	19730829
	JP 54009694	B4	19790426		
PRAI	JP 1973-97607		19730829		

AB **Cathodes** for **batteries** are obtained by electrodepositing a MnO_2 layer on a current collector. The packing d. of the MnO_2 active mass is increased to give a **battery** with increased capacity. Thus, a **Ti** [7440-32-6] **sheet** (0.05-mm thick and covered on 1 side with a protective film) was electrodeposited with MnO_2 in a bath containing MnCl_2 1.5 and HCl 0.5 mole/l. at 95° , 2.5 A/dm² and 2.3 V for 15 hr. After water washing, the **sheet** was cut (20 + 20 mm) and the protective film was peeled off. A **battery** comprising this **cathode**, a **Li** [7439-93-2] **sheet anode**, and a LiBF_4 [14283-07-9] - γ -butyrolactone (1 mole/l.) electrolyte showed a flat discharge curve (voltage vs. discharge time) for a time by a factor of 2 greater than that of a **battery** with a molded powdered MnO_2 - graphite **cathode**.

ST electrodeposition manganese dioxide **cathode**

IT Electrolytic depolarizers

(**battery**, manganese dioxide, **titanium** coated with)

IT **Cathodes**

(**battery**, manganese dioxide-coated **titanium**)

IT 7439-93-2, uses and miscellaneous
RL: USES (Uses)
(**anodes**, in organic-electrolyte battery with
manganese dioxide-coated titanium)

IT 14283-07-9
RL: USES (Uses)
(**battery** electrolyte containing)

IT 7440-32-6, uses and miscellaneous
RL: USES (Uses)
(**cathodes** from manganese dioxide-coated, laminated
battery)

L69 ANSWER 78 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1964:66165 CAPLUS

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OREF 60:11619b-d

ED Entered STN: 22 Apr 2001

TI **Electrocrystallization of compact deposits**

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CS Univ. Halle-Wittenberg, Germany

SO Metalloberflaeche (1963), 17(12), 357-62

CODEN: MOFEAV; ISSN: 0026-0797

DT Journal

LA Unavailable

CC 15 (Electrochemistry)

AB Deposition of **Fe** was first tried on a liquid Pb (99.985% purity)
cathode in a fused FeCl₃-NaCl electrolyte (54 mol. % FeCl₃-46 mol.
% NaCl) and in FeCl₂-KCl-LiCl electrolyte (58.3 mol. % LiCl-41.7 mol. %
KCl) with a **sheet anode** of **Fe**. In the first
bath **Fe** deposited as black, spongy powder which did not adhere
well and mainly dissolved with hot H₂O. In the second bath, **Fe**
deposited in 1-mm. incoherent, shiny **crystals**. Compact deposits
were obtained on solid 1-cm. **sheet Fe** in the
FeCl₂-KCl-LiCl electrolyte. Deposition of **Cu** was carried out on
solid 1-cm.-wide **Cu** strips in a CuCl-NaCl mixture (77 mol. % CuCl,
23 mol. % NaCl) and in a mixture of low CuCl concentration in the temperature
range of

spontaneous **crystallization** and at lower temps. The **cathode**
was covered with dendrites in each case. No compact deposit was obtained.
Different temps. had no effect on the deposit. Deposition of **Ag**
was carried out on **Ag** and **Fe** stationary
cathode, and on **Ag** and **Fe** rotating
cathodes with or without scraping device from AlBr₃-AgBr
electrolytes. Both d.c. and asymmetric a.c. were used. The
anodes were made of **Ag**. Compact, fine-grained coatings
were obtained.

IT 7440-50-8, **Copper**
(electrodeposition or electroplating of, from CuCl-NaCl baths)

IT 7440-22-4, **Silver**
(electrodeposition or electroplating, from AlBr₃-AgBr electrolytes)

IT 7439-89-6, **Iron**
(electrodeposition or electroplating, from fused FeCl₃-NaCl and

FeCl₂-KCl-LiCl electrolytes)

IT 7447-41-8, Lithium chloride
(iron electrodeposition from baths containing FeCl₂,
KCl and)

IT 7447-40-7, Potassium chloride
(iron electrodeposition from baths containing FeCl₂, LiCl and)

IT 7758-94-3, Iron chloride, FeCl₂
(iron electrodeposition from baths containing LiCl, KCl and)

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